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THE HOMEBOUND ELDERLY: THE NEED FOR A NATIONAL MEALS-ON-WHEELS PROGRAM

PREPARED BY THE STAFF OF THE

SELECT COMMITTEE ON NUTRITION AND HUMAN NEEDS UNITED STATES SENATE

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CONTENTS

INTRODUCTION

We are pleased to release this staff study on the nutritional needs of the elderly.

More than three million Americans over the age of sixty are currently homebound and are unable to provide for their own meals. Of these three million homebound elderly citizens, less than 60,000 presently receive home-delivered meals. Homebound senior citizens, especially those living in rural areas, too often become isolated, lonely and malnourished. Therefore, some of their basic human needs such as adequate nutrition and companionship have gone unmet.

The National Meals-on-Wheels Act of 1976, which we introduced along with Senators Dole and Kennedy, would alleviate some of the nutritional and psychological problems which face the homebound elderly. Operating through the structure of the Older Americans Act, Title VII Elderly Nutrition Program, the bill would enable those citizens who are completely unable to get out of their homes because of disability, illness, or isolation to receive meals provided by dedicated volunteers on a regular basis.

A National Meals-on-Wheels program would not only provide good nutrition and play a positive role in the prevention of disease and disability, it would bring substantial fiscal savings to the Government through decreased institutionalization of our elderly. This study shows how, for an $80 million investment, we could receive a return of $250 to $500 million per year beyond the cost of the program. This fact, when combined with the more intangible benefits of the Meals-on-Wheels program, further points up the need for quick Congressional action. During our hearings earlier this year, Senator Bellmon commented, "I'm very impressed with the Meals-on-Wheels program I've seen in operation in my own State. They need a great deal more of this food for the people that are participating."

In the past 20 years, there has been a tremendous effort made by hundreds of private groups throughout the Nation to deliver meals to the homebound. These groups have drawn on the valuable resource of volunteer assistance, and by utilizing whatever funds they can get, have brought nutritious meals and kind support to thousands of the elderly. But this success has been limited by lack of money. Most of the Meals-on-Wheels programs are forced to charge even the destitute for a significant part of the meal cost and, moreover, they find it impossible to reach more than a very small portion of those in need. Our legislation would solve these problems.

The Federal Government has also made a strong commitment to the elderly through such programs as the Social Security Act, the Older Americans Act, and the Food Stamps program.

However, this study points out the homebound elderly suffer from a wide variety of unique problems. As a result, the existing programs have been unable to successfully reach this forlorn group. If we are to solve the situation of these elderly, we must make a direct allocation of support to a program which accounts for their special needs.

This staff study demonstrates that there is a need for a National Meals-on-Wheels program, that it fulfills a service, and that it is worth our investment. We firmly believe that the National Meals-on-Wheels Act is a model program, deserving the support of all of us in Congress. By combining local initiative and concern with Federal assistance, it demonstrates the effective potential of social policy.

Let's not ignore our most dependent citizens—the homebound elderly—let's act now.

GEORGE MCGOVERN,
Chairman.
CHARLES H. PERCY,
Ranking Minority Member.

Chapter I

THE HISTORY OF MEALS ON WHEELS

Meals-on-Wheels, the delivery by community volunteers of nutritious meals to the homes of homebound elderly, blind and disabled persons, originated in Great Britain in 1905. The program, which became known as the "Invalids Kitchens of London," remained a relatively small effort until shortly before World War II. At this time, the Women's Voluntary Service began to deliver thousands of meals to invalids and others who could not properly prepare meals for themselves. During the blitz the service became an important war time means of providing nutrition to the thousands who had lost their means of preparing meals.

At some point during this time, someone dubbed the program "Meals on Wheels" and the name stayed with the program as it spread throughout England and other major cities of Europe. Today, Meals on Wheels programs are operated in Germany, Australia, Canada, New Zealand, Denmark, Switzerland, Scotland, Norway, Wales, and the United States.

Philadelphia was the first city in the United States to begin a Meals on Wheels service. Modeled on the English plan, the Philadelphia service was initiated in 1954 under the auspices of the Lighthouse, a neighborhood settlement house. The program, supervised by settlement house staff but run largely by volunteers, used a limited amount of grant-in-aid funds to deliver approximately 40 meals five days a week to the area's aged and handicapped citizens.

From Philadelphia the idea spread to Columbus, Ohio (1956), to Rochester, New York (1958) and to Mansfield, Ohio (1959). Soon thereafter, Syracuse, New York; East Orange, New Jersey; and Dallas, Texas began operating meal services.

Indeed, the past 20 years have witnessed a dramatic expansion in the delivery of meals to the homebound elderly. Doctors Douglas Holmes and Sandra Howell, in a 1972 report to the Department of Health, Education, and Welfare's Administration on Aging,[1] attempted to assess the degree of this growth. They were able to locate 349 different private programs in operation as of May 1971. Of these, 215 served at least 15 meals per week. More recent estimates show that this growth has continued. Joseph Brown, President of the National Association of Home-Delivered and Congregate Meal Programs, testified before the Select Committee on June 17 of this year that there are currently about 1,100 private Meals on Wheels programs in operation in the United States.

It is important to note that these figures only include those operations which can be classified primarily as private, non-profit, and

[1] Holmes, Douglas, and Howell, Sandra. "A Study of Home Delivered Meals Programs: A Final Report," DHEW: February 1972.

volunteer. They do not include the nutrition efforts funded by the Federal Government through Title VII of the Older Americans Act. Established in 1972 (P.L. 92–258), the Title VII Elderly Nutrition Program is designed to serve most of its meals at congregate meal sites. In 1975, there were 750 projects serving meals at 5,100 sites. However, 85 percent (638) of these projects also provided varying levels of home-delivered meals.

Overall, the concept of delivering meals to the homebound elderly has been embraced and tested by large numbers of communities in virtually every State in the Nation. In spite of this widespread popularity, however, a clear consensus has developed among experts on nutrition and the aging that the current level of meal support for the homebound is woefully inadequate. The purpose of this report is to examine the validity of these claims and to determine what actions are needed at the Federal level.

Chapter II

CHARACTERISTICS AND NEEDS OF THE HOMEBOUND ELDERLY

A. The Characteristics of the General Elderly Population

The homebound or "shut-in" elderly share most, if not all, of the same characteristics as the general elderly population in addition to their immobility. It is, therefore, necessary to begin our understanding of the unique needs of the homebound with a brief description of the problems facing the elderly in general.

Census figures in 1974 indicate a large and increasing number of persons over the age of 65. Slightly over 21 million persons fell within this age bracket in July 1974, and the number was expected to have increased significantly since then. Indeed, this age group is projected to undergo dramatic increases over the next 25 years, a fact that has important implications for policy decisions in this area (table 1). The Census Bureau's report on the Social and Economic Characteristics of the Older Population, 1974, notes that:

> Persons 65 and over constituted about 4 percent of the 1900 population but now constitute 10 percent of the total population . . . The 65 and over segment of the population is expected to climb by the year 2000 to about 30.6 million persons, an increase of about 40 percent over the present number. It would then comprise, depending on the level of future fertility, as much as one-eighth of the total population.

TABLE 1.—PROJECTIONS OF THE TOTAL POPULATION AND OF THE POPULATION 65 YR OLD AND OVER, BY SEX, FOR 5-YR INTERVALS: 1975 TO 2000

[Numbers in thousands]

Series and sex	1975	1980	1985	1990	1995	2000
SERIES 1 [1]						
Total population, all ages	213,641	225,705	241,274	257,663	272,685	287,007
Male	104,244	109,979	117,560	125,605	133,001	140,072
Female	109,397	115,726	123,714	132,058	139,685	146,935
SERIES 3 [2]						
Total population, all ages	213,323	220,356	228,355	235,581	241,198	245,098
Male	104,081	107,238	110,940	114,290	116,871	118,617
Female	109,242	113,118	117,415	121,291	124,326	126,481
Both sexes, 65 yr and over	22,330	24,523	26,659	28,933	30,307	30,600
65 to 69 yr	8,097	8,663	9,161	9,861	9,609	9,023
70 to 74 yr	5,784	6,749	7,228	7,671	8,258	8,056
75 yr and over	8,449	9,112	10,270	11,402	12,439	13,521
Male, 65 yr and over	9,147	9,914	10,684	11,518	11,995	12,041
Female, 65 yr and over	13,182	14,609	15,975	17,415	18,311	18,558
Both sexes, 65 yr and over as percent of total population, all ages:						
Series 1	10.5	10.9	11.0	11.2	11.1	10.7
Series 3	10.5	11.1	11.7	12.3	12.6	12.5

[1] Assumes 2.7 births per woman.
[2] Assumes 1.7 births per woman.

Source: U.S. Department of Commerce, Bureau of the Census.

There are two additional age groups which are of relevance in understanding the problems of the homebound aged. First, the 60 to 64 age group must be counted since they are included as eligibles under the authority of the Title VII Elderly Nutrition Program. 1974 statistics provided by the National Clearinghouse on Aging place the number of individuals in this age bracket at slightly more than 10 million, bringing the total for the 60 and over group to approximately 30 million.

Second, the age group 75 and above is also particularly important, since the infirmities which cause mobility limitations are often age-related. They, therefore, increase in incidence as age increases. Census figures report 8,449,000 in this bracket, with the number projected to increase to 13,521,000 by the year 2000.

In response to a survey of Title VII project directors conducted by Select Committee staff in April 1976, one director noted the importance of considering the increasing ages of participants.

> Our program is somewhat unrealistic regarding homebound meals. The program fails to take into consideration that our participants age. Our program began two years ago. Many of our participants were 75–85 years of age. We began with about 10 percent homebound meals. As our participants (in the congregate program) age, more and more of them will become homebound. A greater and greater percentage of homebound meals will be needed to keep these people in their homes.

Of these approximately 31 million persons over the age of 60, several million have been identified as suffering from various types and degrees of malnutrition (for a complete review of malnutrition among the aged, see Chapter III entitled "Malnutrition in the Elderly").

There is a common and harmful misconception that the malnourishment which plagues the Nation's senior citizens is wholly income-related, as it more often is among younger age groups. In fact, low income among the elderly and the rising cost of food have combined to make this an important and continuing cause for inadequate or improper diet among the aged. Unfortunately, it is but one reason among many which contributes to the high incidence of malnutrition.

Perhaps the most succinct summary of the various causes of malnutrition is found in the opening section of Title VII of the Older Americans Act:

> . . . Many older persons do not eat adequately because (1) they cannot afford to do so; (2) they lack the skills to select and prepare nourishing, well-balanced meals; (3) they have limited mobility which may impair their capacity to shop and cook for themselves; and (4) they have feelings of rejection and loneliness which obliterate the incentive necessary to prepare and eat a meal alone. These and other physiological, psychological, social and economic changes that occur with aging result in a pattern of living which causes malnutrition and further physical and mental deterioration.

(1) They cannot afford to do so

According to 1970 Census Bureau statistics, half of the 7.2 million families headed by persons 65 or over had incomes of less than $5,053 or only 48 percent of the median income ($10,541) of younger families. Almost a quarter of the older families had 1970 incomes of less than $3,000.

In 1974 53.1 percent of families from 65 to 72 years old had incomes below $6,999, with a median income of $6,691, while 70.4 percent of those families age 73 and over were below this level, having a median income of $5,084 (table 2).

Though there appears to have been a slight increase in income levels between 1970 and 1974, the rising cost of living during that time more than offset the gains.

Perhaps a better perspective can be gained by using the poverty level as a measure of the income status of senior citizens. In 1970 about 4.7 million persons over 65 or almost one-quarter, lived in households where the total income fell below the poverty level for that specific household type.

Even using the more generous low-income level measure (25 percent above the poverty level), approximately one in every six persons 65 years old and over, 16 percent or about 3,360,000, was below the low-income level in 1973.

For blacks the figures were even higher, with three out of every eight persons 65 and over (37 percent) below the low-income level. In rural areas the percentage for blacks exceeds 50 percent.

TABLE 2.—TOTAL MONEY INCOME IN 1973 OF PERSONS 62 YEARS OLD AND OVER, BY AGE, AND MARITAL AND FAMILY STATUS

[Couples and persons 62 years old and over as of March 1974]

Marital status, family status, and age	Total (thousands)	Number with income (thousands)	Total money income of income recipients				
			Total	$1 to $1,499 or loss	$1,500 to $2,499	$2,500 to $6,999	$7,000 and over	Median income (dollars)
MARRIED COUPLES								
Total, 62 years and over[1]	8,915	8,883	100.0	1.6	5.1	45.5	47.6	6,747
62 to 64 years	2,214	2,211	100.0	1.6	2.9	25.0	70.6	10,000
65 to 72 years	4,045	4,031	100.0	1.6	5.1	46.4	46.9	6,691
73 years and over	2,655	2,640	100.0	1.8	7.2	61.4	29.7	5,084
SINGLE, WIDOWED, OR DIVORCED PERSONS								
Total, 62 years and over	11,209	10,949	100.0	19.6	28.7	40.9	10.9	2,576
In families	3,934	3,742	100.0	30.2	29.7	31.3	9.0	2,138
Male	755	731	100.0	18.7	21.4	41.3	18.6	2,936
62 to 64 years	216	203	100.0	15.7	9.0	41.4	33.8	4,912
65 to 72 years	230	225	100.0	15.8	23.8	39.9	20.6	3,033
73 years and over	310	302	100.0	22.9	28.0	42.1	7.0	2,465
Female	3,179	3,012	100.0	32.9	31.7	28.8	6.6	1,989
62 to 64 years	452	426	100.0	25.7	21.4	35.8	17.1	2,727
65 to 72 years	1,071	1,003	100.0	26.4	32.0	33.8	7.7	2,208
73 years and over	1,655	1,583	100.0	39.0	34.2	23.7	3.0	1,795
Not in families	7,275	7,206	100.0	14.1	28.3	45.8	11.9	2,813
Male	1,744	1,736	100.0	11.6	24.1	45.5	18.8	3,298
62 to 64 years	302	302	100.0	8.5	20.7	35.4	35.4	4,472
65 to 72 years	645	643	100.0	11.1	20.6	47.9	20.5	3,542
73 years and over	797	791	100.0	13.0	28.4	47.6	11.1	2,882
Female	5,531	5,470	100.0	14.8	29.5	45.9	9.8	2,715
62 to 64 years	681	662	100.0	13.4	21.9	44.2	20.5	3,588
65 to 72 years	2,129	2,118	100.0	13.7	25.2	49.5	11.7	2,915
73 years and over	2,721	2,691	100.0	16.2	34.8	43.6	5.5	2,471

[1] Income of couples with at least 1 member 62 years old or over; if both members 62 and over, age category determined by age of head.

Source: U.S. Department of Commerce, Bureau of the Census.

Given these economic facts, it is to be expected that low-income elderly would suffer the same difficulties in purchasing adequate food as do all low-income persons in this country. Dr. Donald Watkin, then Chairman of the Technical Committee on Nutrition and Chairman of the Study Panel on Nutrition, Postconference Board, 1971 White House Conference on Aging, testified before the Select Committee on May 30, 1973, that:

> Abundant statistics indicate that about one-third of the aged live at or below the current poverty line. Many more are medically indigent, remaining out of poverty only when blessed by good health. These elderly persons living in or on the brink of poverty find nutrition the most compressible item in their budget. Housing, utilities, transportation, health, clothing and even what some may regard as luxury items receive rank order of priority ahead of nutrition.

The constant escalation of food prices since 1970 has increased the significance and impact of this prioritization. When food is a low-priority item, a rise in food costs cannot be overcome merely by a shift to less expensive, lower quality food stuffs. Indeed, prior to any food cost inflation, cheap foods are, by necessity, the mainstay of low-income elderly. Instead, when inflation hits, less food of similar low quality is purchased and nutritional problems become more severe.

Unfortunately, even those elderly persons who may have resources sufficient to purchase adequate amounts of food suffer from a very real psychology of uncertainty. Often anticipating unpredictable budgetary demands, aged persons will delay grocery shopping until they feel absolutely secure in their ability to pay, for instance, a sudden medical expense. At best, this constant feeling of financial insecurity deters large economy purchases and places emphasis on smaller quantity, higher priced foods.

(2) *They lack the skills to select and prepare nourishing and well-balanced meals*

Years of testimony before the Select Committee indicate that persons of all ages suffer from a lack of basic nutrition knowledge. The rapid increase in the number and types of food items as well as the technological innovations of food processing have made nutrition knowledge more important than ever, as well as more difficult to achieve.

For elderly persons this has been a particularly difficult task. As old age approaches, certain metabolic changes require a reduction in caloric intake while necessary levels for vitamins and minerals remain the same—in essence, a smaller target to shoot for.

Radical dietary changes require extreme flexibility in consumption habits. However, more than any other age group, the elderly are exceptionally rigid in their food patterns and are very reluctant to change. The Select Committee's Title VII Survey attempted to assess, among other things, the degree to which elderly persons participating in the program were willing to alter their eating habits after exposure to the program's nutrition education materials. Not surprisingly, over half of those projects conducting such courses were unable to report any measurable impact from nutrition education. To expect those

elderly who are not exposed to any such program, by far the majority of the older population, to adjust to the new nutrition requirements of old age is highly unrealistic. This is not to argue that efforts to raise the nutrition knowledge of the elderly are futile. Rather, the point is made that education alone is insufficient and that the lack of education or effective alternatives is an invitation to malnutrition.

Nutritional ignorance and, indeed, even the inability to prepare so much as an inadequate meal, is a particularly serious problem for older widowers. This older generation went through life in traditional roles, which, among other things, left the women of the household to prepare the family meals. If the wife should happen to die before her husband, he is left, in many cases, totally without the ability to cook much less the capability to select and prepare nourishing meals.

(3) *They have limited mobility which may impair their capacity to shop and cook for themselves*

This characteristic as it applies to the homebound elderly will be fully explored later in this section. It is important to note, however, that this factor sometimes limits the general elderly population, even though they may not be truly and in every sense homebound. Sometimes, the effort to move outdoors to shop for groceries may not be impossible, but is painful or exhausting and requires great effort. The effort, in turn, necessitates a high level of motivation which is too often, but understandably, lacking in the aged.

Limited mobility may also be the result of the lack of adequate transportation. This is particularly, though not exclusively, true in the rural areas of the country where a trip to the grocery store may require a round trip of 50 or more miles. In such instances the lack of reliable transportation, or occasional periods of ill-health or depression, or even bad weather may act as an absolute barrier to a necessary trip to buy groceries.

(4) *They have feelings of rejection and loneliness which obliterate the incentive necessary to prepare and eat a meal alone*

Preparation of consistently nutritious meals requires not only sufficient money and knowledge, but the necessary motivation, each meal of every day. Maintaining this motivation is a difficult task for every American regardless of age, especially in this time of often non-nutritious "convenience foods."

For the elderly person, especially the senior who lives alone, the lack of sufficient incentive is a primary reason for malnourishment. Isolation and the accompanying loneliness rob older persons of the will necessary to prepare nutritious meals or to even care at all. This is often the case, for instance, of older women who have for the majority of their lives derived incentive from the desire to cook for the husband and family. When the family is gone and the husband passes away, the desire to cook for herself diminishes.

William R. Hutton in testimony before the Select Committee concluded that the problem of isolation among the elderly has a direct effect on the nutritional status of older Americans.

> . . . it is a cruel paradox that forces many homebound elderly to scrimp and save on food in order to assume enough money to pay for rent, utilities, and medical expenses. Even

> so, Dr. Robert Butler, Director of the National Institute on Aging, has said that malnutrition—all too common among the elderly—is not the result of poverty alone. Loneliness plays its part, and lonely people may become less interested in preparing food.

The problem of isolation has its most dramatic effects on the over five million elderly who live alone, often with devastating consequences beyond adequate nutrition. In a 1971 Administration on Aging publication, then Commissioner John B. Martin described the situation of the elderly who live alone,

> Many of them are active, well, and continue to take part in community life. But hundreds of thousands of them—even those who are mobile and could participate—live in virtual isolation. The phone does not ring, there are no visitors, there are no invitations . . . There are no incentives to action. And for the frailest, the truly physically homebound, life is lived in a kind of solitary confinement destructive to mental and physical health and humanity.

There are, of course, a number of factors which create this isolation: Poverty, ill-health, inadequate transportation, feelings of rejection and apathy, and loss of a role in the family and in the social structure. Indeed, the essence of our culture plays a large role in the development of these feelings. Dr. Donald Watkins explains:

> Society is youth-oriented; youth is the message of the mass media; youth seduces the news; youth dominates the marketplace; youth saturates the labor market; youth fills the available housing; youth absorbs the time of those skilled in the learned professions . . . Culturally, today's technically-developed society has deprived the aged of their place of honor in the extended families of bygone eras. Gone are not only the pleasure, pride, and status of the patriarch, but also the economic and emotional security which the extended family provided.

The role isolation and loneliness play in the nutritional problems of the elderly is substantial and easily leads to specific nutrient shortages. For instance, Dr. William A. Krehl, Professor and Chairman of the Department of Community Health and Preventive Medicine at Philadelphia's Jefferson Medical College has written,

> One of the most common problems for elderly persons is the gradual but progressive development of apathy toward other individuals, toward the environment generally, and particularly toward food. The aged individual living alone all too often limits nutritional selection to easily prepared foods, primarily those with a high carbohydrate content such as bread, jam, jelly, and easily prepared cereal food . . . Such individuals often have very low levels of serum ascorbic acid, vitamin A, and Iron, and the quality and quantity of their protein intake may be questionable.

Whether the cause is low-income, nutritional ignorance, lack of motivation, poor health, or a wide range of other common afflictions,

numerous experts, surveys, and studies have concluded that, even in the general elderly population, millions are malnourished. For the homebound elderly, these conditions are present and compounded by the further complications of their specific physical or mental limitations.

B. The Unique Characteristics of the Homebound

It is possible to outline in a very general sense the unique characteristics of elderly persons who are considered truly homebound. Generally they are:

—Physically handicapped.
—Mentally incompetent (unable to communicate due to old age).
—Regular congregate nutrition program participants who may suffer a stroke, heart attack, fall or non-serious illness that temporarily prevents attendance at the regular meal site.
—Convalescing at home after a period of hospitalization for any of a wide range of illnesses or injuries.
—Rural residents who are so geographically isolated as to effectively preclude either attendance at a congregate meal site or regular grocery shopping trips.
—Perhaps able physically to attend a meal site but lacking reliable means of transportation.
—Unable physically to prepare a meal due to a loss of manual dexterity brought on by old age.

It is important to remember that this list is general and in no sense exhaustive. At the program level, this lack of precise criteria presents some difficulties, but the problem has been overcome in most cases by well-developed referral systems.

The referral of a potential client may be made by a doctor, the Visiting Nurse Association, local social service agencies, area hospitals, or, in many instances, from a Title VII congregate meal program.

In those cases in which an elderly person requests service without a specific referral, or it is requested for them by a friend or relative, the established procedure for most Meals on Wheels programs is an interview of the potential client by phone or, preferably, in person. The client is usually asked to describe the nature of the restrictive condition, and possible alternatives to meal service (i.e. meal preparation by a friend or relative, etc.) are explored. Because of the general scarcity of program resources versus community need, there is a great pressure on local programs to insure that only those who are truly confined to their homes and without alternatives are served.

A more complete sense of the typical profile of the homebound senior can be gained by a review of two studies, one national and one of a single program, the Neighborly Center, Inc., of St. Petersburg, Florida.

A comprehensive study of home-delivered meal programs was conducted in 1972 by Drs. Douglas Holmes and Sandra Howell, from the Center of Community Research in New York City. The study, a survey of 349 different home-delivered meals programs which existed as of May 1971, used questionnaires, follow-up telephone calls, and on-site interviews of program staff and participants. Ultimately, 32 programs were selected for intensive study, with 16 participants from each program selected for further interviews.

In terms of social impoverishment, an important factor in nutritional health, 74 percent of the participants lived alone. This fact is also extremely important because a disabled person living alone rarely receives assistance in preparing a meal.

An equally important fact revealed by the study was that approximately one-half of those participants studied reported annual incomes of under $2,000, while only an approximate 10 percent of the respondents had incomes of $5,000 or over. The study was unable to determine the income of 14 percent of the participants, because some of the programs did not feel it appropriate to ask clients such questions.

The very important issue of the particular needs of homebound participants was addressed in great detail by the Holmes and Howell study. The results indicated a wide variance in the reasons meal service had become necessary. They report that:

> There was no one predominating reason which explains why the participants needed home-delivered meal program participation. Rather, the reasons are distributed over a number of factors, including general infirmatics of old age (19 percent), ambulatory problems (14 percent), and being crippled or bedridden (12 percent). Other factors included recovering from surgery or major illness (11 percent), poor dietary habits (8 percent), heart problems (7 percent), arthritis (7 percent), senility (5 percent), blindness (5 percent), mental illness or need for companionship (6 percent), and diabetes (5 percent). It is important to note that, among the aged program participants, it is an impression of the research staff that a significant majority have a wide range of old age-linked infirmities. For research purposes, only the predominant difficulty was categorized.

Equally informative statistics were gathered in a 1971 study of the Neighborly Center, Inc., of St. Petersburg, Florida, a project funded, in part, by a Title IV grant from the Administration on Aging. In this Meals on Wheels project, meal recipients ranged in age from 60 to 96 years, with a mean age of 80.4 years. Of all meal recipients, 66 percent had monthly incomes of $100 to $199, with 94 percent identifying Social Security as the primary source. At the same time, the average total monthly expenditure was $117.80.

The physical conditions of the clients in this project appear consistent with those in the Holmes and Howell study. One-half of the clients had poor vision, even with the aid of eyeglasses; 24 percent were partially blind. Twenty percent of respondents reported being hard of hearing, while 82 percent used dentures. Nearly one-half (47 percent) reported ability to walk only with help, with one-quarter needing a crutch to walk. Eighty-nine percent of the clients were unable to climb stairs.

Importantly, the following diseases were reported: 5 percent lung breathing, 3 percent kidney, 4 percent bowel and bladder, 20 percent arthritis rheumatism, 16 percent heart, 5 percent blood pressure, 2 percent diabetes, 35 percent other.

Clearly, the homebound aged suffer not only from the general problems facing most senior citizens, but also from a wide range of

other physical and mental handicaps. It is these additional burdens which make this group the most dependent and most in need of compassion and assistance.

C. How Many Need Meals On Wheels?

The Experts Disagree

There has been much effort and study in recent years to determine the number of persons who are in need of home-care services, including home-delivered meals. It is not an area lacking in controversy, though most experts agree that, at a minimum, the number of elderly needing such services is substantial. Estimates of the number vary, and the criteria and qualifiers used to define that number are many and complex.

Rudolph T. Danstedt, assistant to the President of the National Council of Senior Citizens, in testimony before the Subcommittee on Health and Long Term Care of the House Select Committee on Aging, described the general parameters of the need in November 1975:

> We are beginning to face up to the fact that somewhere on the order of one out of 6 older Americans who are not in institutions are in need of direct health and social services if they are to be able to manage their own affairs and remain in their own homes and communities.

This estimate when applied to the 65 plus population would, of course, indicate over 3 million elderly in need of such services. Other studies and reports are more specific, making specific reference to the categories used in their calculations. For instance, an expert panel on long term care assembled by the Maryland Office on Aging argued in its second draft of recommendations in September 1975, that:

> In 1972, 17.6 percent of the non-institutionalized population age 65 and over had mobility limitations due to chronic conditions. They were confined to the house, needed help in getting around, or had trouble getting around. In the same year, 16.3 percent of the elderly were unable to carry on major activity due to chronic conditions. This means they did not have the ability, physically, to work or keep house.

One of the more thorough studies of the number of elderly confined to their homes was conducted by Dr. Robert Norris and staff specialists at the Levinson Gerontological Policy Institute of Brandeis University. In their report, "Alternatives to Nursing Home Care: A Proposal," prepared for the use of the Senate Special Committee on Aging, reference is made to the estimate of Agnes Brewster, consultant for the Special Committee. She estimates that 2.6 million persons 65 years and over need in-home services: 300,000 in institutions and 2.3 million in the community.

The final estimate of the Levinson study, however, is a slightly higher figure. Donald Trautman, chairman of the legislative committee of the National Association of Home Health Care Agencies, noted in

his 1975 testimony before the House Subcommittee on Health and Long Term Care that:

> The Levinson Gerontological Policy Institute, Brandeis University, found that, *in addition to the current institutionalized population* (emphasis added), it is estimated that at least 16 percent (or 2.9 million) of the 19 million non-institutionalized elderly in the United States are unable to carry out their daily activities as a result of chronic disease and disability.

Factoring in Brewster's estimate of 300,000 elderly in institutions to this estimate of 2.9 million in the community would bring the total number of elderly 65 years and over in need of in-home services to 3.2 million.

It should be noted that the estimates from the Levinson Institute were not without some controversy of their own. The Senate Subcommittee on Long Term Care of the Special Committee on Aging in its report, Home Health Care Services: Alternatives to Institutionalization, makes note of the reaction to the Levinson Institute study,

> Commenting on this report, Elaine Brody of the Philadelphia Ceriatrics Center characterizes the 2.6 million figure (Brewster's) as an understatement. Ethel Shanas, a professor of sociology at the University of Illinois, arrived at a figure of 4 million potential home health beneficiaries by adding the institutionalized, bedfast, homebound, and those who walk with difficulty. By this estimate, one out of every five older Americans is a potential candidate for home care. In an Urban Institute working paper, Burton D. Dunlap projected that 2.5 million individuals needed home health services including meal services. He evaluated the above-mentioned studies in reaching this conclusion.

Meals on Wheels versus Home Health Care

One potential drawback to applying these estimates to the assessment of need for home-delivered meals is that they refer to the need for home-health services in general and not exclusively to in-home nutrition services. However, any discrepancy between the two figures would likely result in an upward adjustment of the number needing nutrition services.

Meal services are, most often, the first and the last in-home service needed. An elderly person generally loses the capability to shop for and prepare meals before losing the ability to perform other light housework. In these cases of gradual deterioration, the need for a home-delivered meal service most often preceeds the need for other home care services. On the other hand, there are few potential circumstances under which a person receiving home care assistance would not also need meal assistance of some type.

It is also true that the availability of meals-on-wheels prior to the need for other home-care services may play a substantial role in preventing further deterioration. In testimony before the Select Committee, Dr. Jurgen Schmandt, professor of Public Affairs at the

Lyndon B. Johnson School of Public Affairs of Austin, Texas, addressed himself to this issue and concluded:

> For individuals not yet on alternative care, adequate nutrition can be looked upon as a critical part of preventive care. Some participants in our demonstration reported how much better and more energetic they felt after having eaten a regular balanced diet. We believe that this kind of improvement can be expected in many elderly.

In short, while there are many instances in which meals-on-wheels are needed before other in-home services, there are probably few cases where other home-care services would be sufficient without some type of meal preparation assistance; therefore, estimates of the numbers needing home-health care tend to be underestimates of the number needing home-delivered meals.

National Health Survey

A more precise count of the latter group (those needing in-home nutrition services) can best be gained by an analysis of the primary source which most experts use in deriving their own estimates, the National Health Survey, conducted by the Public Health Service of HEW. The Survey provides a useful, but perhaps incomplete, categorization of elderly persons 65 and over based on mobility limitations or activity limitations.

In the major category of mobility limitations, a total of 1,581,000 are either confined to house and bed (448,000), confined to house (787,000), or need another person to get around (346,000).

There is an additional subcategory of mobility limitations, "needs special aid in getting around" (special aid referring to items such as canes and wheelchairs), which includes 981,000 elderly. This subcategory, however, includes an undetermined group of individuals who are capable of meal preparation and should, therefore, not be considered as in need of home-delivered meals.

As for the second major category, there are 3,246,000 persons age 65 and over who are "unable to carry on major activity." The term "major activity" refers to the ability to do work around the house, including the ability to shop and prepare adequate, nutritious meals.

Qualifiers

There are a number of qualifiers to these figures, which apply to estimates from other sources as well. First, the figures from the National Health Survey include only those persons 65 years of age and over. Since eligibility for Title VII and S. 3585 is set at age 60 and over, the 60–64 age bracket must be considered in any calculations of need for home-delivered meals.

As previously noted, census figures indicate that approximately 10 million persons are between 60 and 64 years old. No precise breakdown of mobility or activity limitation for this age group could be obtained. It is likely that the percentage of those suffering from chronic limitations is at least somewhat less than for those persons who are older. A conservative estimate for this age group would be 10 percent and is, therefore, used in further calculations. Application of this percentage to the number of persons 60 to 64 would be an additional 1 million in need of in-home nutrition service.

Second, the National Health Survey includes only those persons with chronic mobility or activity limitations; limitations caused by temporary illness, physical disability or prolonged convalescence are excluded.

Refusing to adjust figures for non-chronic limitations would overlook one of the more significant, positive benefits of home-delivered meals. Persons connected to Meals-on-Wheels programs consistently argue that the availability of home-delivered meals often allows earlier discharge of hospital patients who are incapable of preparing their own meals, yet do not need full hospital care. In fact, as far back as 1955, Dr. Stanley A. Tauber explained this benefit as experienced in the then still young Lighthouse Program. He wrote:

> We have reason to believe that by admitting to this program newly discharged hospital patients and rendering this service to them during their convalescence, we have enabled the hospital to shorten the in-patient time for these patients. In cases of fracture, for instance, during the healing period when the patients only need is to lie in bed and receive nourishment and a minimum of nursing care, we have made it possible for some individuals to leave the hospital as much as ten days earlier.

More recently, Jody Olsen, President of Meals on Wheels of Central Maryland, provided statistics to the Select Committee which indicated that the average length of service is from one to four weeks. Additionally, she noted, 31 percent of those persons terminating meal service did so because they had returned to self care. These statistics would seem to indicate that short term service to persons with non-chronic conditions is an important feature of Meals-on-Wheels.

The actual number of persons falling within this last category is difficult to determine. One indicator is the number of days per year that the elderly are either disabled or confined to bed. Data from the National Health Survey's "Disability Days Report," shows that persons age 65 to 74 had an average of 28.8 days of restricted activity per year and were bed-ridden for 10.1 days per year. At the same time, the oldest group, age 75 and above, reported an average of 42.5 days per year of disability and 18.5 days of bed disability.

It should be noted that since this portion of the Survey considers restricted activity to mean days in which "usual activity" is curtailed, these statistics are additive to those for persons with chronic conditions.

While these figures cannot be extrapolated into actual need, they lend credence to the position that large numbers of persons other than those with chronic conditions could benefit from short-term home meal delivery. A more complete analysis of this Meals-on-Wheels' benefit is detailed in Chapter V, Meals on Wheels as an Alternative to Institutionalization.

Third, the Survey's figures, as well as those of other sources (except Brewster), exclude the institutionalized population. Brewster, on the other hand, argues that 300,000 persons in nursing homes and other institutions could return to the community if effective alternatives were provided; other sources go as high as 400,000. At a minimum, it would again appear likely that a sizable number of the institutionalized

population could benefit from in-home meal service and should be included in calculations of need. A reasonable estimate based on assessment of studies detailed in the section entitled Meals on Wheels as an Alternative to Institutionalization would be 200,000 persons.

Staff estimates based on these factors place the number of persons age 60 and over who may need in-home nutrition services at 3 to 4 million persons. It should be noted that this figure allows considerable latitude for overlapping estimates and qualifiers; as such, it is, in fact, a conservative estimate of the nationwide need.

Chapter III

MALNUTRITION AND THE AGING

A. General Dietary Needs of the Elderly

Since 1943, the Food and Nutrition Board of the National Academy of Sciences has determined Recommended Dietary Allowances (RDA) judged "to be adequate to meet the known nutritional needs of practically all healthy persons" (table 1). These allowances are specified according to age and sex, and assume certain average "references" for height and weight. In using the RDA to evaluate dietary intakes, it is important to understand that they are not nutritional *requirements;* instead, they are levels of intake which the FNB believes will minimize the danger of nutritional deficiency. For this reason, the RDA include a safety factor for most of the population. A common fallacy of recent years is that, because of this leeway, it is safe for groups to consume between 66 and 100 percent of the RDA. This is not a legitimate conclusion. Though such action is appropriate for a large segment of the population, it is extremely difficult to determine from an aggregate perspective exactly which persons fall into this category. Thus, a diet in that medium range poses severe risks unless justified by careful individual analysis. Doctors Krehl and Hodges, then at the University of Iowa College of Medicine, confirmed this analysis:

> It should be emphasized that the allowances are based on the objective of maintenance of good health and, therefore, would seem to be a public health preventive measure which should be adhered to. Therefore, in interpreting nutrient intakes it is reasonably safe to suggest that those which are less than the recommended allowances may not be adequate, at least for the continued maintenance of good health.

After careful study of the available data on nutrition in the elderly, the Food and Nutrition Board reached the conclusion that, with one major exception, the aging process does not intrinsically increase or decrease dietary requirements. The minimum requirements for energy, however, clearly depart from this rule. The FNB cites studies by Durnin and Passmore showing that the basal metabolic rate declines by 2 percent per decade in adults. In addition, persons approaching old age gradually reduce their activity levels. As a result, the RDA suggest significant reductions in caloric intake for the elderly relative to their younger years.

If the requirements for other essential nutrients were to decrease as well, the dietary implications of such a reduction could almost be viewed as desirable. Unfortunately, such is not the case. Nutritional

research has generally shown that non-caloric requirements are at least as high as in previous years. As a result, the elderly must manage to decrease caloric intake while maintaining other nutrient levels. The difficulties of this shift in diet were pointed out by the FNB in 1974:

> Many of the essential nutrients, particularly the minerals, are distributed widely and in low concentration in foods, especially the low-cost staple commodities. . . . (U)nless food choices are made with great care, the amounts of essential nutrients consumed are likely to be less than during the more active years.

TABLE 1

FOOD AND NUTRITION BOARD, NATIONAL ACADEMY OF SCIENCES–NATIONAL RESEARCH COUNCIL
RECOMMENDED DAILY DIETARY ALLOWANCES,[a] Revised 1974

Designed for the maintenance of good nutrition of practically all healthy people in the U.S.A.

	Age	Weight		Height		Energy	Protein	Fat-Soluble Vitamins			Water-Soluble Vitamins							Minerals					
								Vitamin A Activity		Vitamin D	Vitamin E Activity[d]	Ascorbic Acid	Folacin[f]	Niacin[g]	Riboflavin	Thiamin	Vitamin B_6	Vitamin B_{12}	Calcium	Phosphorus	Iodine	Iron	Magnesium	Zinc
	(years)	(kg)	(lbs)	(cm)	(in)	(kcal)[b]	(g)	(RE)[c]	(IU)	(IU)	(IU)	(mg)	(μg)	(mg)	(mg)	(mg)	(mg)	(μg)	(mg)	(mg)	(μg)	(mg)	(mg)	(mg)
Infants	0.0–0.5	6	14	60	24	kg × 117	kg × 2.2	420[e]	1,100	400	4	35	50	5	0.4	0.3	0.3	0.3	360	240	35	10	60	3
	0.5–1.0	9	20	71	28	kg × 108	kg × 2.0	400	2,000	400	5	35	50	8	0.6	0.5	0.4	0.3	540	400	45	15	70	5
Children	1–3	13	28	86	34	1,300	23	400	2,000	400	7	40	100	9	0.8	0.7	0.6	1.0	800	800	60	15	150	10
	4–6	20	44	110	41	1,800	30	500	2,500	400	9	40	200	12	1.1	0.9	0.9	1.5	800	800	80	10	200	10
	7–10	30	66	135	54	2,100	36	700	3,300	400	10	40	300	16	1.2	1.2	1.2	2.0	800	800	110	10	250	10
Males	11–14	44	97	158	63	2,800	41	1,000	5,000	400	12	45	400	18	1.5	1.4	1.6	3.0	1,200	1,200	130	18	350	15
	15–18	61	134	172	69	3,000	51	1,000	5,000	400	15	45	400	20	1.8	1.5	2.0	3.0	1,200	1,200	150	18	400	15
	19–22	67	147	172	69	3,000	54	1,000	5,000	400	15	45	400	20	1.8	1.5	2.0	3.0	800	800	140	10	350	15
	23–50	70	154	172	69	2,700	56	1,000	5,000		15	45	400	18	1.6	1.4	2.0	3.0	800	800	130	10	350	15
	51+	70	154	172	69	2,400	56	1,000	5,000		15	45	400	16	1.5	1.2	2.0	3.0	800	800	110	10	350	15
Females	11–14	44	97	155	62	2,400	41	800	4,000	400	12	45	400	16	1.3	1.2	1.6	3.0	1,200	1,200	115	18	300	15
	15–18	54	119	162	63	2,100	48	800	4,000	400	12	45	400	14	1.4	1.1	2.0	3.0	1,200	1,200	115	18	300	15
	19–22	58	128	162	63	2,100	46	800	4,000	400	12	45	400	14	1.4	1.1	2.0	3.0	800	800	100	18	300	15
	23–50	58	128	162	63	2,000	46	800	4,000		12	45	400	13	1.2	1.0	2.0	3.0	800	800	100	18	300	15
	51+	58	128	162	63	1,800	46	800	4,000		12	45	400	12	1.1	1.0	2.0	3.0	800	800	80	10	300	15
Pregnant						+300	+30	1,000	5,000	400	15	60	800	+2	+0.3	+0.3	2.5	4.0	1,200	1,200	125	18+[h]	450	20
Lactating						+500	+20	1,200	6,000	400	15	80	600	+4	+0.5	+0.3	2.5	4.0	1,200	1,200	150	18	450	25

[a] The allowances are intended to provide for individual variations among most normal persons as they live in the United States under usual environmental stresses. Diets should be based on a variety of common foods in order to provide other nutrients for which human requirements have been less well defined. See text for more detailed discussion of allowances and of nutrients not tabulated. See Table I (p. 6) for weights and heights by individual year of age.

[b] Kilojoules (kJ) = 4.2 × kcal.

[c] Retinol equivalents.

[d] Assumed to be all as retinol in milk during the first six months of life. All subsequent intakes are assumed to be half as retinol and half as β-carotene when calculated from international units. As retinol equivalents, three fourths are as retinol and one fourth as β-carotene.

[e] Total vitamin E activity, estimated to be 80 percent as α-tocopherol and 20 percent other tocopherols. See text for variation in allowances.

[f] The folacin allowances refer to dietary sources as determined by *Lactobacillus casei* assay. Pure forms of folacin may be effective in doses less than one fourth of the recommended dietary allowance.

[g] Although allowances are expressed as niacin, it is recognized that on the average 1 mg of niacin is derived from each 60 mg of dietary tryptophan.

[h] This increased requirement cannot be met by ordinary diets; therefore, the use of supplemental iron is recommended.

B. Individual Nutrition Concerns in Aging

Though the RDA are valuable for assessing nutritional status, any analysis of the diets of the elderly must consider the wide disparities between individual needs. Energy requirements are a clear example. An estimate of minimum needs can be made, but, beyond that point, caloric intake should be closely correlated to each person's level of activity.

Activity, of course, is not the only variable. It is obvious that, as a person ages, he or she departs further and further from any concept of "average." In addition, the degree of infirmity rises sharply. Doctor Willard Krehl of the Jefferson Medical College reported in 1974:

> The overwhelming majority of elderly people have one or more chronic illnesses, such as atherosclerosis, digestive upsets (including malabsorptive phenomena), rheumatologic disorders, osteoporosis, . . . and a whole host of other medical and psychologic problems.

The RDA, being intended primarily for *population* analysis, do not account for these highly diverse factors. The implications of this were pointed out by Doctors Solomon and Shock during their gerontology research in Maryland:

> The major prerequisite for effective nutritive therapy in the aged is careful and detailed individual evaluation. . . . Physicians should consider each aged individual first as to how his nutritional needs differ from the requirements of his younger years due to physiologic changes, and second as to how nutrition can minimize disabilities which often appear in elderly people.

After understanding these factors in the nutrition of the elderly, one can begin to examine the various assessments of malnutrition in the aged which have been conducted.

C. Degree of Malnutrition

Studies designed to assess the nutritional status of the elderly have focused on two basic types of malnutrition: (1) undernutrition, the failure to obtain necessary amounts of essential nutrients, and (2) excessive caloric intake and its impact on the level of obesity. There are, of course, other dietary problems, but these two appear to be the most widespread as well as the most conclusively proven.

1. undernutrition

As outlined in Chapter III, there are several basic causes of malnutrition in the elderly. The National Dairy Council, in a recent review of geriatric nutrition research, points out that the elderly suffer from a high degree of nutritional deficiencies:

> A high incidence of malnutrition among the aged can be inferred from a number of information sources. These include the recognition that many aged live under circumstances that pre-dispose them to malnutrition: low income, isolation, and a high prevalence of disease. . . . There is a general consensus that diets of elderly individuals are often nutritionally

inadequate with the result that the nutritional status of some of these individuals is poor.

San Mateo study

In recent years, a number of local researchers have examined various types and sizes of elderly populations. Though the specific methodologies and results have varied between studies, there is a consensus that the degree of undernutrition is intolerably high. One of the earliest and most frequently mentioned studies was done in San Mateo County, California. The study began in the summer of 1948 with the examination of 577 persons over the age of 50. Follow-up studies on this group were conducted, in as complete a fashion as possible, in 1952, 1954, and 1962. Using 24-hour dietary recalls, the authors of the 1962 study compiled the nutrient intakes of the 141 individuals who participated in all four examinations. Table 2 indicates those results:

TABLE 2.—NUTRIENT INTAKES OF 141 AGED SUBJECTS OVER A PERIOD OF 14 YEARS

[Percent with intake below 2/3 RDA]

Nutrient	Men (n=68)				Women (n=73)			
	1948	1952	1954	1962	1948	1952	1954	1962
Calories	1	4	10	22	7	3	14	11
Protein	6	4	6	12	11	7	5	8
Calcium	12	25	24	25	37	44	37	45
Iron	3	3	3	0	8	4	8	5
Vitamin A	9	15	15	24	16	23	26	27
Thiamine	3	4	7	12	5	7	4	4
Riboflavin	3	6	4	7	12	10	7	10
Niacin	51	38	53	66	64	56	59	62
Ascorbic acid	19	15	12	25	26	22	11	19

In analyzing these results, two notes of caution should be made. First, the niacin deficiencies are very high because only pre-formed niacin was evaluated. Since an intake of 60 gm. of protein provides approximately 500 mg. of trytophan, and since this is equivalent to 8 mg. niacin, the niacin deficiencies are far less than indicated. Second, there is a strong element of bias in the sample. Only those who participated in all four studies were included. As the authors point out, such participation was directly related to educational level. Thus, by excluding those who were likely to have lower incomes, the sample may tend to underestimate deficiency levels.

Le Bovit study

Corinne Le Bovit of the USDA's Agricultural Research Service conducted a food consumption survey in 1957 of 283 households receiving Social Security in Rochester, New York. These households, containing 457 people over the age of 55, provided one-week records of their food intakes. Table 3 presents the compilation of that data.

TABLE 3.—PERCENTAGE OF HOUSEHOLDS FAILING TO MEET THE RDA FOR EIGHT NUTRIENTS

Nutrient	67 to 99 percent of RDA	Less than 67 percent of RDA
Calories	19	4
Protein	19	2
Calcium	32	9
Iron	19	4
Vitamin A value	19	7
Thiamine	17	3
Riboflavin	11	2
Ascorbic acid	29	15

In addition to these specific deficiencies, the study found that only 21 percent of the households met the recommended allowances for all eight nutrients; 26 percent had diets which provided less than two-thirds of the allowances for one or more nutrients.

Le Bovit also related diet quality to aging. She found that, of the households run by a person in the 55–75 age group, 52 percent met the RDA for all eight nutrients and only 21 percent had diets which failed to provide at least two-thirds of the RDA for each nutrient. For homemakers 75 years and over, however, only 34 percent met the full RDA, while 37 percent had diets which (for one or more nutrients) failed to provide at least two-thirds of the allowances.

It is likely that these figures underestimate the extent of deficiencies since the calculation of nutrients was based on food purchased rather than food consumed. Thus, the element of waste in preparation and consumption was excluded.

Davidson study

Dr. Charles Davidson and associates at the Age Center of New England in Boston, Massachusetts, examined 104 elderly subjects in 1961. Intake was measured over a 2-week period: 1 week of recall and 1 week of written record. The 2-week totals were only taken from those persons in the larger, original sample who were considered sufficiently reliable.

Since the intakes were not related to dietary allowances, all results must be analyzed in terms of values closest to the RDA. The protein intake of 16 percent of the group was between 0.8 and 1.0 gm. per kilogram of body weight; 4 percent fell between 0.6 and 0.8 gm. per kilogram; and only one person (1 percent) had a protein intake below 0.6 gm. per kilogram of body weight per day. Seven percent had vitamin A intakes below 4,000 I.U. Twenty-one percent had thiamine intakes below 1.0 mg. per day. For riboflavin, 37 percent had intakes below 2.0 mg. per day, and 3 percent had intakes below 1.0 mg. per day. Ten percent had vitanim C intakes below 30 mg. per day, and 5 percent were below 20 mg. per day. Thirty percent of the subjects took less than 0.7 gm. of calcium daily and 4 percent had less than 0.4 gm. Iron intake was less than 8 mg. daily for 6 percent of the sample, and less than 11 mg. daily for almost 40 percent.

Dibble study

In October 1963, M. V. Dibble and Associates from Syracuse University began an evaluation of nutritional status of elderly residents in local public housing units. The units were part of a large complex, but, since no central kitchen was provided, each person was responsible for his or her own food. The first results were for dietary intake among 102 subjects. These are provided in table 4.

TABLE 4.—DISTRIBUTION OF NUTRIENT INTAKES EXPRESSED AS PERCENTAGES OF THE RDA

Nutrient	Intake		
	0 to 66	67 to 99	100 plus
Calories	23	47	30
Protein	13	48	39
Iron	14	57	29
Vitamin A	45	16	39
Ascorbic acid	47	28	25
Thiamine	7	40	53
Riboflavin	17	38	45

To supplement these dietary evaluations, the researchers performed biochemical tests of nutritional status on the original 102 subjects and an additional group of 112 subjects. Table 5 summarizes the results of these tests.

TABLE 5.—DISTRIBUTION OF LOW AND DEFICIENT BIOCHEMICAL FINDINGS

Test	Nutritional status (percent of population)	
	Deficient	Low
Hematocrit	7	36
Ascorbic acid	1	6
Carotene	1	2
Vitamin A	0	1
TTP-effect, hexose	2	10
Thiamine excretion	14	27
Riboflavin excretion	3	14

This study, therefore, provided corroboration through biochemical tests of the nutrient deficiencies indicated by the low dietary intakes. Moreover, this study may not be totally accurate because the sample provided no racial mix.

Joering study

By the end of the 1960's, as Government feeding programs increased, researchers began trying to assess the nutritional impact of those efforts. One such study was conducted by Elizabeth Joering of the College of Mount Saint Joseph in Cincinnati. Twenty-four hour recalls of food intake were taken from 185 elderly in four senior citizen centers and a home-delivered meals service in Cincinnati. These were divided according to whether the individuals had eaten a meal provided by the program during the recall period. Tables 6 and 7 provide the results of the assessment.

TABLE 6.—AVERAGE NUTRIENT INTAKES (AS A PERCENTAGE OF THE RDA) FOR ALL PARTICIPANTS (n=185)

Nutrient	Intake	
	Meal provided	No meal
Protein	130	95
Calcium	90	60
Iron	140	95
Vitamin A	181	85
Thiamine	90	75
Riboflavin	95	75
Niacin	110	80
Ascorbic acid	100	90

TABLE 7.—AVERAGE NUTRIENT INTAKES (AS A PERCENTAGE OF THE RDA) OF THE SUBJECTS RECEIVING HOME-DELIVERED MEALS (n=27)

Nutrient	Intake	
	Meal provided	No meal
Protein	100	85
Calcium	100	60
Iron	145	80
Vitamin A	244	80
Thiamine	75	75
Riboflavin	125	75
Niacin	95	75
Ascorbic acid	65	40

It should be noted that these figures are *average* nutrient intakes and do not indicate the exact percentage of the group falling below the RDA. However, since, for many of the figures, the means *themselves* fall below the recommended allowances, the total percentage experiencing deficiency is huge indeed. Given the significantly higher intakes of those subjects who participated in the meals programs, this study demonstrates the benefits which are possible through such efforts.

Guthrie study

Doctor Helen Guthrie led a research group from Pennsylvania State University in an early 1970 study of senior citizens in rural Pennsylvania. Nutrient intake for two groups of elderly was determined by 24-hour recall. Group I contained 55 persons from 35 households, all of whom were eligible for food stamps. Group II contained 54 persons from 35 households, all of whom had incomes too high to allow eligibility. The results of the recall are shown in table 8.

Table 8.—PERCENT OF PERSONS, BY NUTRIENT, WITH INTAKE LESS THAN 2/3 OF THE RDA

Nutrient	Both groups	Group I	Group II
Calories	46	55	38
Protein	29	42	16
Calcium	64	70	58
Iron	18	26	10
Vitamin A	66	70	63
Thiamine	42	51	34
Riboflavin	45	57	34
Vitamin C	45	51	38

These results clearly indicate deficient intake for the elderly as a whole. They also show a definite correlation of nutritional status to income level. Combining these results with 1,009 other interviews from the same area, the authors found through multiple regression analysis that increase in age was correlated to significant decline in adequacy of dietary intake.

Kohrs study

Another local study was conducted in 1973 by Dr. Mary Bess Kohrs of Lincoln University's Human Nutrition Research Laboratory. This study, like that of Dibble, used both biochemical and dietary evaluation of nutritional status. The results for the sample of 547 senior citizens in Missouri are shown in tables 9 and 10.

TABLE 9.—PERCENTAGE OF SUBJECTS WITH LOW BLOOD LEVELS, BY TEST

Test	Male	Female
Hemoglobin	29.6	7.5
Serum iron	27.7	17.7
Plasma vitamin A	6.2	3.8
Plasma carotene	4.8	8.1
Serum vitamin C	.8	.6

TABLE 10.—PERCENTAGE OF SUBJECTS NOT MEETING 2/3 RDA, BY NUTRIENT

Nutrient	Male	Female
Calories	19.2	24.0
Protein	.9	3.9
Calcium	13.8	24.5
Iron	0	8.3
Vitamin A	0	.7
Thiamine	2.5	9.3
Riboflavin	.9	1.5
Vitamin C	0	.5
Niacin	21.7	12.5

Obviously, the above studies to determine the nutritional status of the elderly show wise variations in degree of deficiency. Two reasons may be cited for this: First, there are differences by regions in type and amount of intake; second, there are differences in methodology. (One of the primary elements of methodological variation is the measure of food intake. Twenty-four hour evaluations are easier to use but result in wider variation from the individual's usual intake.) Thus, they will tend to show higher levels of deficiency than such longer surveys as 1 or 2 weeks.) Despite these variations, however, the local studies all conclude that very high levels of deficiency exist in the elderly population.

The next level of assessment is national. In the last 12 years, three efforts at assessment have been made: The Household Food Consumption Survey of 1965–66; the Ten State Nutrition Survey of 1968–70; and the Health and Nutrition Examination Survey (HANES) of 1971–72.

Household food consumption survey

In 1965 the Agricultural Research Service measured the nutrient intake of a sample of 14,519 men, women, and children in the United States. Food consumption was determined by 24-hour dietary recalls. The survey included results from 1,643 persons over the age of 65. The following table shows the results for this group.

TABLE 11.—NUTRIENT INTAKE OF PERSONS OVER 65 AS A PERCENTAGE OF THE RDA

Sex-age group	Number of persons	Calories	Protein	Calcium	Iron	Vitamin A	Thiamine	Riboflavin	Ascorbic acid	Vitamin B_6*	Vitamin B_{12}*	Magnesium*
All incomes:												
Male:												
65 to 74	460	89	127	86	135	116	106	100	110	75	108	69
75 and over	219	94	112	76	115	91	109	84	92	65	92	61
Female:												
65 to 74	624	89	110	63	98	99	84	83	104	55	87	60
75 and over	340	101	107	64	92	86	84	79	100	55	80	59
Incomes under $3,000:												
Male:												
65 to 74	183	85	121	87	127	99	103	93	90			
75 and over	108	88	101	69	103	71	100	75	68			
Female:												
65 to 74	304	86	105	63	93	100	82	81	95			
75 and over	190	93	96	59	87	80	78	73	84			
Incomes over $8,000:												
Male:												
65 to 74	56	98	142	98	144	145	120	110	145			
75 and over	23	103	120	73	119	98	106	79	120			
Female:												
65 to 74	47	98	123	61	112	115	87	87	127			
75 and over	25	108	115	78	98	121	92	96	125			

*No income divisions available.

Once again, it must be understood that *mean* intake levels at or above the RDA do not imply that the diets of the group are fully adequate. These mean figures do not specify the percentage of persons failing to meet the RDA. In fact, even for the nutrients for which average intake is well above the recommended allowances, it can be assumed that even an optimistic distribution would reveal a significant degree of undernutrition.

An additional point of caution should be made in reference to the intake of vitamin B_{12}. The allowance used in this survey was 6.0 micrograms daily. Since the standard has since been lowered to 3.0 micrograms, the above table greatly overestimates the extent of vitamin B_{12} deficiency.

Ten-State nutrition survey

The Ten State Nutrition Survey, as its name implies, is not representative of the entire Nation. Moreover, the groups studied were also not representative of their particular States. As the data presentation below indicates, the survey only involves a limited number of race and income classifications.

Income level was expressed in terms of a Poverty Income Ratio (PIR) for each family. Families with a negative ratio were below the appropriate poverty line, those with a positive ratio were above. The income ratio of each State was determined by whether the median PIR was above 1.0 (HIRS, high income ratio state) or below 1.0 (LIRS, low income ratio state). Despite the name, those in the high income ratio States were generally not high income families. Of the subjects in the six high income ratio States, only those in New York had a median income greater than twice the poverty line. The average poverty income ratio for all subjects was 1.89. Thus, the Ten State Nutrition Survey sample was primarily a low-income group.

Unlike the Household Food Consumption Survey, this study utilized both biochemical and dietary measures of nutritional status. The results of these tests are shown in the following tables.

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TABLE 12.—PERCENT OF PERSONS OVER 59 YR OF AGE WITH UNACCEPTABLE (LOW OR DEFICIENT) RESULTS IN SELECTED BIOCHEMICAL TESTS OF NUTRITIONAL STATUS

Classification of sex, income, ethnic group	Test Results											
	Hemoglobin		Hematocrit		Serum albumin		Serum protein		Plasma vitamin A		Serum vitamin C	
	Total number	Percent unacceptable	Total number	Percent unacceptable	Total number	Percent unacceptable	Total number	Percent unacceptable	Total number	Percent unacceptable	Total number	Percent unacceptable
Male (LIRS):												
White	281	26.7	276	39.9	241	6.2	244	11.8	270	2.6	272	13.6
Black	308	65.2	304	45.4	206	21.4	212	17.5	277	2.9	272	18.3
Spanish American	82	45.1	81	54.2	67	17.9	67	12.0	77	14.3	71	15.5
Female (LIRS):												
White	347	10.4	344	12.5	290	7.9	293	10.9	331	1.2	326	7.0
Black	502	31.5	506	31.7	325	18.4	335	15.8	442	1.4	435	9.2
Spanish American	87	16.0	86	24.4	73	19.1	73	9.6	81	11.1	77	2.6
Male (HIRS):												
White	724	24.6	720	40.4	659	5.2	662	3.4	580	3.1	595	5.5
Black	101	50.5	99	57.5	82	7.3	84	4.8	78	1.3	78	10.3
Spanish American	45	35.5	44	40.9	40	2.5	40	0	39	0	35	5.7
Female (HIRS):												
White	1,024	6.9	1,035	10.1	913	4.7	919	5.0	833	2.1	858	2.3
Black	156	24.4	155	25.8	125	4.8	126	1.6	118	.8	121	4.9
Spanish American	69	14.4	71	14.0	61	1.6	61	0	57	0	52	3.8

Two additional tests were also performed: Urinary riboflavin values and urinary thiamine values. However, no breakdown by sex was made.

TABLE 13.—TEST RESULTS

Classification of income/ethnic group	Urinary riboflavin		Urinary thiamine	
	Total number	Percent unacceptable	Total number	Percent unacceptable
LIRS:				
White	509	6.5	496	4.8
Black	498	15.8	471	8.0
Spanish American	153	8.5	149	11.4
HIRS:				
White	1,515	5.5	1,317	2.6
Black	217	12.9	189	9.0
Spanish American	103	1.9	81	8.6

TABLE 14.—PERCENT OF PERSONS OVER 59 YEARS OF AGE WITH DIETARY INTAKE LESS THAN THE RDA

Classification of sex, income, ethnic group	Dietary intake results															
	Calories		Protein		Calcium		Iron		Vitamin A		Thiamine		Riboflavin		Vitamin C	
	<RDA	<75 percent RDA	<RDA	<70 percent RDA	<RDA	<75 percent RDA	<RDA	<70 percent RDA	<RDA	<70 percent RDA	<RDA	<66 percent RDA	<RDA	<66 percent RDA	<RDA	<66 percent RDA
Male (LIRS):																
White	71	52	37	12	55	40	40	16	72	52	63	26	44	18	51	36
Black	85	74	52	29	77	64	55	34	71	59	74	47	58	42	61	49
Spanish American	76	60	44	21	86	72	35	16	84	68	70	42	63	35	65	47
Male (HIRS):																
White	66	41	30	11	58	44	35	16	65	50	68	35	47	20	48	38
Black	79	63	40	8	76	58	53	30	79	64	74	40	69	23	70	58
Spanish American	74	51	33	14	62	52	33	14	90	71	67	48	50	19	67	57
	<RDA	<70 percent RDA	<RDA	<66 percent RDA	<RDA	<75 percent RDA	<RDA	<70 percent RDA	<RDA	<75 percent RDA	<RDA	<70 percent RDA	<RDA	<70 percent RDA	<RDA	<66 percent RDA
Female (LIRS):																
White	78	40	36	17	72	59	65	35	69	54	68	43	46	26	53	40
Black	85	59	55	32	81	69	76	54	64	58	79	58	55	34	61	53
Spanish American	66	40	32	14	74	64	54	28	66	54	64	40	42	24	58	44
Female (HIRS):																
White	72	35	26	7	78	58	56	26	60	47	72	44	42	21	43	29
Black	87	55	41	13	84	74	76	40	54	51	79	60	67	42	41	36
Spanish American	84	45	38	23	77	52	77	43	80	69	89	54	45	29	63	52

NOTE. The criteria of significant failure to meet RDA vary in order to match the distributions used in the survey. The percentage failing to meet the full RDA includes the percentage failing to meet the fraction of the RDA.

This survey demonstrates that, for those persons who live on low incomes, nutritional difficulties are very widespread. Indeed, the evidence of deficiency is so significant for so many nutrients that the findings of the Ten State Survey present a special challenge to those attempting to improve the nutrition of the elderly.

Health and nutrition examination survey

The final, and most comprehensive, attempt at national assessment to date is the Health and Nutrition Examination Survey. In April 1971, as part of an attempt to establish an ongoing system of national nutrition surveillance, the National Center for Health Statistics began collecting data from 14,147 persons aged 1–74 years. Though the response rate (72.8 percent) failed to fully meet the requirements of the original probability design, the Center points out that:

> The resulting estimates are much more closely representative of the civilian, non-institutionalized population of the United States than estimates from any previous survey on nutrition.

The survey included both biochemical and dietary measurements of nutritional status. Intake was measured by 24-hour recall. Since the HANES results are only preliminary, the scope of the current data is somewhat limited.

Though the general representativeness of the sample is better than previous surveys, one important exclusion occurred: no subjects over the age of 74 were examined. This is critical, for the over-74 population represents one of the most nutritionally vulnerable groups in the Nation, as well as a large segment of the elderly population. Thus, HANES fails to give an accurate picture of malnutrition in the elderly.

The biochemical and dietary results for 1,938 persons between the ages of 60 and 74 are shown in the following tables.

TABLE 15.—PERCENTAGE OF PERSONS AGED 60-74 WITH LOW VALUES IN BIOCHEMICAL TESTS

Biochemical test	TEST RESULTS								
	All income			Income below poverty level			Income above poverty level		
	Total	White	Negro	Total	White	Negro	Total	White	Negro
Hemogolbin	8.82	7.04	27.62	10.99	5.46	29.56	8.45	7.60	22.83
Hematocrit	17.18	15.40	35.22	19.91	13.38	41.71	16.89	16.21	26.97
Serum iron	1.55	1.58	1.26	3.60	4.03	2.16	1.27	1.30	.79
Transferrin saturation	2.76	2.96	.73	4.27	5.30	.82	2.67	2.79	.80
Serum protein	11.69	12.17	6.90	4.06	4.99	.96	12.83	13.17	7.74
Serum albumin	2.65	2.60	3.28	2.82	2.24	4.77	2.43	2.47	1.88
Serum vitamin A	.14	.13	.27	.06	0	.28	.09	.07	.31

TABLE 16.—CUMULATIVE PERCENTAGE DISTRIBUTION OF CALORIC INTAKE VALUES FOR PERSONS AGED 60 AND OVER

Calories	Total [1]	White	Negro
ALL INCOME			
Total	100.00	100.00	100.00
Less than 250	.13	.01	1.30
250 to 499	2.08	1.82	4.86
500 to 749	6.09	5.41	13.37
750 to 999	17.47	16.44	27.78
1,000 to 1,249	34.19	32.62	50.27
1,250 to 1,499	49.45	47.66	68.13
1,500 to 1,749	64.89	63.81	76.03
1,750 to 1,999	74.14	73.20	83.93
2,000 to 2,249	82.19	81.72	87.34
2,250 to 2,499	88.66	88.36	92.21
2,500 to 2,749	93.01	92.84	95.24
2,750 to 2,999	95.16	95.10	96.36
3,000 to 3,249	96.17	96.15	96.81
3,250 to 3,499	97.04	97.06	97.31
3,500 to 3,749	98.12	98.19	97.31
3,750 to 3,999	98.87	99.01	97.35
4,000 to 4,249	99.18	99.35	97.35
4,250 to 4,499	99.45	99.65	97.35
4,500 to 4,749	99.69	99.71	99.41
4,750 to 4,999	99.86	99.90	99.41
Greater than 4,999	100.00	100.00	100.00
INCOME BELOW POVERTY LEVEL [2]			
Total	100.00	100.00	100.00
Less than 250	.55	.10	2.06
250 to 499	6.35	5.53	9.09
500 to 749	12.90	11.40	17.97
750 to 999	29.41	27.37	36.28
1,000 to 1,249	46.67	43.35	57.89
1,250 to 1,499	64.47	63.90	66.47
1,500 to 1,749	72.07	71.40	74.42
1,750 to 1,999	82.28	81.68	84.28
2,000 to 2,249	86.57	86.06	88.25
2,250 to 2,499	91.27	90.46	93.98
2,500 to 2,749	94.99	94.54	96.51
2,750 to 2,999	98.29	98.35	98.06
3,000 to 3,249	98.95	99.16	98.27
3,250 to 3,499	99.01	99.16	98.53
3,500 to 3,749	99.32	99.55	98.53
3,750 to 3,999	99.32	99.55	98.53
4,000 to 4,249	99.33	99.57	98.53
4,250 to 4,499	99.49	99.78	98.53
4,500 to 4,749	99.49	99.78	98.53
4,750 to 4,999	99.66	100.00	98.53
Greater than 4,999	100.00	100.00	100.00
INCOME ABOVE POVERTY LEVEL [2]			
Total	100.00	100.00	100.00
Less than 250	0	0	0
250 to 499	1.35	1.38	.98
500 to 749	4.98	4.71	9.80
750 to 999	15.86	15.69	17.92
1,000 to 1,249	32.55	31.93	42.13
1,250 to 1,499	47.28	46.17	65.68
1,500 to 1,749	63.34	62.69	73.81
1,750 to 1,999	72.43	71.87	81.66
2,000 to 2,249	80.66	80.44	84.59
2,250 to 2,499	87.68	87.62	89.35
2,500 to 2,749	92.51	92.51	93.35
2,750 to 2,999	94.61	94.69	94.33
3,000 to 3,249	95.77	95.87	95.05
3,250 to 3,499	96.43	96.53	95.85
3,500 to 3,749	97.71	97.82	95.85
3,750 to 3,999	98.68	98.84	95.93
4,000 to 4,249	99.07	99.26	95.93
4,250 to 4,499	99.39	99.59	95.93
4,500 to 4,749	99.69	99.67	100.00
4,750 to 4,999	99.88	99.88	100.00
Greater than 4,999	100.00	100.00	100.00

[1] Total includes all races.
[2] Excludes persons with unknown income.

TABLE 17.—CUMULATIVE PERCENTAGE DISTRIBUTION OF PROTEIN INTAKE VALUES FOR PERSONS AGED 60 AND OVER

Protein (grams)	Total[1]	White	Negro
ALL INCOME			
Total	100.00	100.00	100.00
Less than 5	.30	.23	.99
5 to 9	.44	.30	1.99
10 to 14	1.18	.95	3.60
15 to 19	2.31	2.01	5.55
20 to 24	4.60	4.16	9.31
25 to 29	8.00	7.38	14.71
30 to 34	12.58	11.66	22.60
35 to 44	27.61	26.50	39.35
45 to 49	33.82	31.94	52.81
50 to 59	48.54	46.56	68.67
60 to 69	59.99	58.67	73.43
70 to 79	72.25	71.52	79.93
80 to 89	80.75	80.00	88.65
90 to 99	86.13	85.79	89.88
100 to 109	88.91	88.71	91.24
110 to 119	91.49	91.43	92.50
120 to 129	93.27	93.36	92.78
130 to 139	94.66	94.62	95.57
140 to 149	96.40	96.28	98.08
150 to 159	97.10	97.00	98.67
160 to 169	97.64	97.59	98.76
170 to 179	97.97	97.98	99.35
180 to 189	98.67	98.54	100.00
190 to 199	99.15	99.07	100.00
200 to 209	99.30	99.23	100.00
210 to 219	99.46	99.41	100.00
220 to 229	99.46	99.41	100.00
230 to 239	99.52	99.47	100.00
240 to 249	100.00	100.00	100.00
Greater than 249	100.00	100.00	100.00
INCOME BELOW POVERTY LEVEL[2]			
Total	100.00	100.00	100.00
Less than 5	.42	0	1.83
5 to 9	1.22	.29	4.33
10 to 14	1.59	.29	5.97
15 to 19	4.91	3.54	9.49
20 to 24	11.67	10.69	15.00
25 to 29	15.86	14.68	19.87
30 to 34	22.67	22.63	22.81
35 to 44	41.26	41.12	41.77
45 to 49	47.86	44.93	57.75
50 to 59	59.31	56.09	70.19
60 to 69	68.15	66.65	73.28
70 to 79	81.23	81.63	80.04
80 to 89	87.15	86.80	88.47
90 to 99	92.23	93.02	89.57
100 to 109	94.29	94.85	92.40
110 to 119	96.22	96.80	94.27
120 to 129	97.62	98.52	94.59
130 to 139	98.45	99.05	96.44
140 to 149	98.92	99.65	96.44
150 to 159	99.25	99.65	97.91
160 to 169	99.39	99.76	98.15
170 to 179	99.73	99.76	99.62
180 to 189	99.82	99.76	100.00
190 to 199	99.82	99.76	100.00
200 to 209	99.82	99.76	100.00
210 to 219	99.99	99.98	100.00
220 to 229	99.99	99.98	100.00
230 to 239	100.00	100.00	100.00
240 to 249	100.00	100.00	100.00
Greater than 249	100.00	100.00	100.00

See footnotes at end of table.

TABLE 17.—CUMULATIVE PERCENTAGE DISTRIBUTION OF PROTEIN INTAKE VALUES FOR PERSONS AGED 60 AND OVER—Continued

Protein (grams)	Total[1]	White	Negro
INCOME ABOVE POVERTY LEVEL[2]			
Total	100.00	100.00	100.00
Less than 5	.27	.29	0
5 to 9	.31	.33	0
10 to 14	1.08	1.10	.84
15 to 19	1.80	1.81	1.86
20 to 24	3.39	3.35	4.23
25 to 29	6.88	6.72	9.96
30 to 34	11.21	10.58	22.20
35 to 44	25.34	24.56	38.20
45 to 49	31.18	30.09	47.91
50 to 59	46.56	45.51	62.70
60 to 69	59.10	58.44	69.45
70 to 79	71.06	70.71	76.73
80 to 89	79.71	79.27	87.13
90 to 99	85.54	85.38	88.48
100 to 109	88.29	88.30	88.69
110 to 119	91.13	91.26	89.69
120 to 129	92.93	93.16	89.99
130 to 139	94.51	94.59	94.06
140 to 149	96.64	96.56	99.02
150 to 159	97.48	97.45	99.02
160 to 169	97.80	97.79	99.02
170 to 179	98.05	98.06	99.02
180 to 189	98.95	98.88	100.00
190 to 199	99.57	99.54	100.00
200 to 209	99.75	99.73	100.00
210 to 219	99.94	99.93	100.00
220 to 229	99.94	99.93	100.00
230 to 239	100.00	100.00	100.00
240 to 249	100.00	100.00	100.00
Greater than 249	100.00	100.00	100.00

[1] Total includes all races.
[2] Excludes persons with unknown income.

TABLE 18.—CUMULATIVE PERCENTAGE DISTRIBUTION OF CALCIUM INTAKE VALUES FOR PERSONS AGED 60 AND OVER

[The standard for calcium intake for males aged 60 years and over is 400 mg and for females at these ages, 600 mg; however, sex breakdowns are not given and the lower standard of 400 mg is used]

Calcium (mgs)	Total[1]	White	Negro
ALL INCOME			
Total	100.00	100.00	100.00
Less than 50	.21	.10	1.38
50 to 99	1.34	.93	5.69
100 to 149	3.99	3.27	11.66
150 to 199	8.68	7.19	23.56
200 to 299	22.87	21.45	37.22
300 to 399	36.90	35.72	48.53
400 to 449	41.26	39.98	53.76
450 to 499	45.74	44.58	56.76
500 to 549	51.44	50.51	59.95
550 to 599	55.49	54.64	63.34
600 to 649	60.93	60.12	68.52
650 to 699	64.52	63.76	71.66
700 to 799	70.72	69.62	81.47
800 to 899	76.66	75.60	87.21
900 to 999	80.37	79.45	89.52
1,000 to 1,199	88.49	87.85	94.92
1,200 to 1,399	94.00	93.72	96.85
1,400 to 1,599	96.20	96.06	97.70
1,600 to 1,799	97.52	97.49	97.78
1,800 to 1,999	98.12	98.14	97.84
Greater than 1,999	100.00	100.00	100.00
INCOME BELOW POVERTY LEVEL[2]			
Total	100.00	100.00	100.0
Less than 50	.34	.11	1.10
50 to 99	3.94	3.05	6.91
100 to 149	7.59	6.33	11.82
150 to 199	14.86	13.04	21.00
200 to 299	27.53	26.04	32.54
300 to 399	41.42	40.43	44.67
400 to 449	47.51	47.65	46.98
450 to 499	53.04	53.71	50.74
500 to 549	59.81	61.14	55.29
550 to 599	63.56	65.55	56.83
600 to 649	66.93	67.47	65.10
650 to 699	70.19	71.67	65.17
700 to 799	77.33	76.70	79.41
800 to 899	84.72	83.62	88.37
900 to 999	86.22	85.46	88.74
1,000 to 1,199	92.26	90.89	96.83
1,200 to 1,399	94.67	93.68	97.97
1,400 to 1,599	96.58	95.69	99.55
1,600 to 1,799	96.94	96.10	99.76
1,800 to 1,999	97.15	96.37	99.76
Greater than 1,999	100.00	100.00	100.00
INCOME ABOVE POVERTY LEVEL[2]			
Total	100.00	100.00	100.00
Less than 50	.18	.11	1.35
50 to 99	.81	.63	3.88
100 to 149	3.24	3.02	7.02
150 to 199	7.70	6.70	23.08
200 to 299	20.98	20.05	35.56
300 to 399	35.25	34.41	47.71
400 to 449	39.48	38.37	56.22
450 to 499	43.72	42.68	58.43
500 to 549	49.53	48.66	61.63
550 to 599	53.79	52.86	67.11
600 to 649	59.05	58.25	70.51
650 to 699	62.60	61.66	76.56
700 to 799	68.74	67.88	81.50
800 to 899	74.63	73.98	84.35
900 to 999	78.94	78.30	88.62
1,000 to 1,199	87.97	87.65	92.70
1,200 to 1,399	93.94	93.85	95.38
1,400 to 1,599	96.35	96.38	95.80
1,600 to 1,799	97.67	97.77	95.80
1,800 to 1,999	98.39	98.54	95.93
Greater than 1,999	100.00	100.00	100.00

[1] Total includes all races.
[2] Excludes persons with unknown income.

TABLE 19.—CUMULATIVE PERCENTAGE DISTRIBUTION OF IRON INTAKE VALUES FOR PERSONS AGED 60 AND OVER

[The standard for iron intake for persons aged 60 years and over is 10 mg]

Iron (mgs)	Total [1]	White	Negro
ALL INCOME			
Total	100.00	100.00	100.00
Less than 0.5	.15	.16	0
0.5 to 0.9	.17	.16	.26
1 to 1.4	.54	.48	1.17
1.5 to 1.9	.68	.51	2.43
2 to 2.4	.77	.58	2.78
2.5 to 2.9	1.10	.88	3.48
3 to 3.4	2.42	2.10	5.89
3.5 to 3.9	4.18	3.79	8.39
4 to 4.9	8.77	8.11	15.92
5 to 5.9	13.40	12.44	23.61
6 to 6.9	22.90	21.26	39.87
7 to 7.9	32.23	30.54	49.83
8 to 8.9	42.74	41.31	57.69
9 to 9.9	50.42	48.91	66.30
10 to 10.9	58.52	57.06	73.29
11 to 11.9	65.61	64.39	78.12
12 to 12.9	71.64	70.71	81.18
13 to 13.9	76.41	75.76	83.15
14 to 14.9	79.53	78.98	85.36
15 to 15.9	83.64	83.22	88.27
16 to 16.9	86.75	86.51	89.47
17 to 17.9	89.37	89.16	91.89
18 to 18.9	91.54	91.47	92.72
19 to 19.9	92.11	92.06	93.08
20 to 20.9	93.15	93.18	93.16
21 to 21.9	94.96	94.84	96.68
22 to 22.9	95.28	95.19	96.68
23 to 23.9	96.14	96.13	96.76
Greater than 23.9	100.00	100.00	100.00
INCOME BELOW POVERTY LEVEL [2]			
Total	100.00	100.00	100.00
Less than 0.5	0	0	0
0.5 to 0.9	0	0	0
1 to 1.4	1.08	.72	2.28
1.5 to 1.9	1.82	.91	4.85
2 to 2.4	2.28	1.42	5.17
2.5 to 2.9	2.51	1.51	5.87
3 to 3.4	5.38	3.99	10.03
3.5 to 3.9	8.80	7.65	12.67
4 to 4.9	17.91	16.03	24.24
5 to 5.9	23.82	21.67	31.04
6 to 6.9	34.68	31.47	45.49
7 to 7.9	45.26	42.23	55.50
8 to 8.9	58.15	56.67	63.21
9 to 9.9	63.71	62.66	67.31
10 to 10.9	68.46	67.23	72.68
11 to 11.9	75.39	74.28	79.20
12 to 12.9	80.55	79.51	84.13
13 to 13.9	84.41	83.46	87.72
14 to 14.9	88.20	88.03	88.92
15 to 15.9	91.32	91.52	90.77
16 to 16.9	92.54	93.05	90.98
17 to 17.9	93.68	93.05	95.96
18 to 18.9	94.85	94.56	95.96
19 to 19.9	95.85	95.86	95.96
20 to 20.9	96.56	96.74	95.96
21 to 21.9	96.67	96.74	96.43
22 to 22.9	96.67	96.74	96.43
23 to 23.9	97.76	98.09	96.65
Greater than 23.9	100.00	100.00	100.00

See footnotes at end of table.

TABLE 19.—CUMULATIVE PERCENTAGE DISTRIBUTION OF IRON INTAKE VALUES FOR PERSONS AGED 60 AND OVER—Continued

[The standard for iron intake for persons aged 60 years and over is 10 mg]

Iron (mgs)	Total[1]	White	Negro
INCOME ABOVE POVERTY LEVEL[2]			
Total	100.00	100.00	100.00
Less than 0.5	.19	.20	0
0.5 to 0.9	.19	.20	0
1 to 1.4	.46	.49	0
1.5 to 1.9	.49	.49	.48
2 to 2.4	.50	.50	.48
2.5 to 2.9	.84	.82	1.30
3 to 3.4	1.98	1.94	2.79
3.5 to 3.9	3.46	3.38	4.96
4 to 4.9	7.49	7.37	9.85
5 to 5.9	11.74	11.33	18.64
6 to 6.9	20.74	19.73	36.56
7 to 7.9	29.73	28.81	44.76
8 to 8.9	40.05	39.31	51.96
9 to 9.9	47.99	46.97	64.57
10 to 10.9	57.02	56.18	69.86
11 to 11.9	64.19	63.54	74.27
12 to 12.9	70.52	70.14	76.44
13 to 13.9	75.73	75.63	77.37
14 to 14.9	78.29	78.15	80.71
15 to 15.9	82.87	82.76	84.99
16 to 16.9	86.24	86.21	87.20
17 to 17.9	89.39	89.52	87.74
18 to 18.9	91.90	92.11	89.11
19 to 19.9	92.30	92.50	89.83
20 to 20.9	92.99	93.22	89.99
21 to 21.9	95.31	95.29	96.47
22 to 22.9	95.63	95.63	96.47
23 to 23.9	96.19	96.24	96.47
Greater than 23.9	100.00	100.00	100.00

[1] Total includes all races.
[2] Excludes persons with unknown income.

TABLE 20.—CUMULATIVE PERCENTAGE DISTRIBUTION OF VITAMIN A INTAKE VALUES FOR PERSONS AGED 60 AND OVER

[The standard for vitamin A intake for persons aged 60 years and over is 3500 I.U.]

Vitamin A (IU)	Total [1]	White	Negro
ALL INCOME			
Total	100.00	100.00	100.00
Less than 250	1.21	1.08	2.57
250 to 499	3.01	2.92	4.00
500 to 749	5.14	4.97	6.96
750 to 999	8.65	8.29	12.10
1,000 to 1,249	12.69	12.41	15.46
1,250 to 1,499	17.65	17.46	19.63
1,500 to 1,799	23.18	22.92	25.45
1,750 to 1,999	28.51	28.21	31.31
2,000 to 2,249	32.59	32.25	35.88
2,250 to 2,499	38.17	37.99	40.03
2,500 to 2,999	47.95	47.90	48.60
3,000 to 3,499	56.21	56.34	55.00
3,500 to 3,999	61.74	61.95	59.68
4,000 to 4,499	67.47	67.89	63.13
4,500 to 4,999	70.52	71.11	64.40
5,000 to 5,999	75.51	76.06	69.87
6,000 to 6,999	78.65	78.97	75.45
7,000 to 7,999	83.86	84.10	81.68
8,000 to 8,999	86.86	87.22	83.34
9,000 to 9,999	88.82	89.14	85.72
Greater than 9,999	100.00	100.00	100.00
INCOME BELOW POVERTY LEVEL [2]			
Total	100.00	100.00	100.00
Less than 250	4.05	3.96	4.34
250 to 499	6.66	6.85	6.04
500 to 749	10.26	10.84	8.34
750 to 999	14.80	14.30	16.52
1,000 to 1,249	18.78	18.08	21.13
1,250 to 1,499	25.19	25.02	25.79
1,500 to 1,749	30.97	30.10	33.92
1,750 to 1,999	37.53	36.61	40.66
2,000 to 2,249	40.45	39.55	43.51
2,250 to 2,499	44.74	43.19	49.99
2,500 to 2,999	56.35	56.10	57.27
3,000 to 3,499	61.65	61.45	62.40
3,500 to 3,999	67.59	68.44	64.68
4,000 to 4,499	71.56	72.27	69.16
4,500 to 4,999	77.34	79.29	70.78
5,000 to 5,999	80.74	82.79	73.86
6,000 to 6,999	82.92	85.41	74.54
7,000 to 7,999	88.89	90.70	82.78
8,000 to 8,999	91.36	93.30	84.87
9,000 to 9,999	92.96	95.15	85.62
Greater than 9,999	100.00	100.00	100.00
INCOME ABOVE POVERTY LEVEL [2]			
Total	100.00	100.00	100.00
Less than 250	.74	.70	1.43
250 to 499	2.54	2.53	2.72
500 to 749	4.48	4.37	6.34
750 to 999	7.89	7.83	8.40
1,000 to 1,249	11.80	11.80	11.41
1,250 to 1,499	16.67	16.74	15.36
1,500 to 1,749	22.11	22.21	19.34
1,750 to 1,999	27.44	27.50	25.61
2,000 to 2,249	31.73	31.66	32.14
2,250 to 2,499	37.48	37.68	33.86
2,500 to 2,999	47.15	47.30	44.84
3,000 to 3,499	55.36	55.56	52.24
3,500 to 3,999	60.50	60.56	59.47
4,000 to 4,499	66.21	66.42	62.75
4,500 to 4,999	68.96	69.26	63.91
5,000 to 5,999	74.37	74.71	68.93
6,000 to 6,999	77.42	77.32	79.23
7,000 to 7,999	82.41	82.56	80.49
8,000 to 8,999	85.74	85.99	82.12
9,000 to 9,999	87.74	87.86	86.23
Greater than 9,999	100.00	100.00	100.00

[1] Total includes all races.
[2] Excludes persons with unknown income.

TABLE 21.—CUMULATIVE PERCENTAGE DISTRIBUTION OF VITAMIN C INTAKE VALUES FOR PERSONS AGED 60 AND OVER

[The standard for vitamin C intake for males aged 60 years and over is 60 mg and for females at these ages, 55 mg; however, sex breakdowns are not given and the standard of 60 mg is used]

Vitamin C (mgs)	Total [1]	White	Negro
ALL INCOME			
Total	100.00	100.00	100.00
Less than 5	4.45	4.06	8.28
5 to 9	8.63	8.01	14.76
10 to 14	12.25	11.58	18.86
15 to 19	16.04	15.34	22.94
20 to 24	19.39	18.65	26.77
25 to 29	23.26	22.46	31.44
30 to 34	26.86	26.09	34.70
35 to 39	30.21	29.55	37.04
40 to 44	32.52	31.76	40.38
45 to 49	36.29	35.49	44.67
50 to 54	38.84	38.16	46.11
55 to 59	41.11	40.60	48.57
60 to 64	43.63	42.69	53.71
65 to 69	46.04	45.12	55.93
70 to 79	51.24	50.14	63.02
80 to 89	56.33	55.52	65.11
90 to 99	61.17	60.35	70.24
100 to 109	65.08	64.50	71.70
110 to 119	70.39	69.90	76.23
120 to 129	74.04	73.71	78.31
130 to 139	76.48	76.28	79.50
140 to 149	81.08	81.03	82.59
Greater than 149	100.00	100.00	100.00
INCOME BELOW POVERTY LEVEL [2]			
Total	100.00	100.00	100.00
Less than 5	9.85	8.57	14.19
5 to 9	15.25	12.93	23.03
10 to 14	20.57	18.31	28.18
15 to 19	27.96	25.48	36.32
20 to 24	35.02	33.59	39.84
25 to 29	38.07	36.68	42.78
30 to 34	42.53	41.67	45.48
35 to 39	47.94	47.95	47.96
40 to 44	51.06	51.00	51.33
45 to 49	53.14	53.43	52.25
50 to 54	55.68	56.01	54.65
55 to 59	58.11	59.16	54.65
60 to 64	59.63	60.29	57.52
65 to 69	60.72	61.31	58.71
70 to 79	64.62	64.68	64.37
80 to 89	68.68	69.88	64.63
90 to 99	71.84	72.90	68.24
100 to 109	73.51	74.81	69.11
110 to 119	79.13	80.98	72.91
120 to 129	81.87	83.91	74.97
130 to 139	83.47	85.68	76.06
140 to 149	87.77	90.19	79.63
Greater than 149	100.00	100.00	100.00
INCOME ABOVE POVERTY LEVEL [2]			
Total	100.00	100.00	100.00
Less than 5	3.63	3.54	4.55
5 to 9	7.63	7.43	9.97
10 to 14	10.88	10.64	14.00
15 to 19	14.25	14.11	15.65
20 to 24	16.79	16.52	20.45
25 to 29	21.00	20.69	25.51
30 to 34	24.75	24.43	29.60
35 to 39	27.93	27.67	31.93
40 to 44	30.02	29.69	35.40
45 to 49	34.26	33.79	42.10
50 to 54	36.90	36.55	42.68
55 to 59	39.21	38.96	43.78
60 to 64	41.67	41.12	51.36
65 to 69	44.16	43.70	52.50
70 to 79	49.54	48.94	60.19
80 to 89	55.09	54.62	63.78
90 to 99	60.09	59.49	71.07
100 to 109	64.23	63.79	72.65
110 to 119	69.25	68.77	78.61
120 to 129	72.94	72.55	80.99
130 to 139	75.29	74.97	82.24
140 to 149	80.25	80.06	85.53
Greater than 149	100.00	100.00	100.00

[1] Total includes all races.
[2] Excludes persons with unknown income.

Conclusions

The subjects of almost all nutrition surveys of the elderly have been volunteers. This factor is of critical importance when one realizes that the isolation, loneliness and withdrawal which so often accompany old age can cause volunteer-based studies to significantly underestimate the degree of malnutrition. For the homebound elderly, who have both physical and attitudinal barriers to participation, this bias may be extremely severe. Dr. Charles Davidson, in reporting his Boston Age Center evaluation, confirmed this problem:

> The members (of the Boston Age Center) are not a random sample of the aging population in Boston. They are selected, first, by their ability to come to the Center where most of the studies are made. Second, they are selected in the sense that they are motivated, interested in aging, in the Center, in belonging to the group, and undoubtedly for less obvious reasons.

Despite the large array of data on the elderly, it is difficult to make a single quantification of undernutrition. There are problems in even finding a definition of undernutrition. Perhaps the most useful approach is to find the number of aged persons whose diets fail to provide at least two-thirds of the Recommended Dietary Allowances. As pointed out earlier, such a definition tends to give an incorrect picture of the actual incidence of deficiencies. However, in order to provide an aggregate result for use in public policymaking, it probably is the best tool for providing a reasonable yet conservative conclusion.

Even once such a definition is selected, however, difficulties remain. Since there has been little integration of nutrient intake data by the various research groups, it is almost impossible to determine which of the deficiencies discovered are suffered by which subjects. The primary exception to this shortcoming is the survey conducted by Le Bovit. She found that 26 percent of the households had diets which failed, for one or more nutrients, to meet the two-thirds RDA criterion. Since Le Bovit measured intake over a 1-week period rather than a 24-hour period, her findings may be quite typical of the general aged population. Moreover, the other studies mentioned above generally found individual nutrient deficiencies of approximately the same, or greater, degree. Thus, it can be assumed that the Le Bovit estimate of overall diet quality is at least reasonable, and possibly conservative.

The implication of this 26 percent estimate is that approximately 8 million out of the 30 million citizens over the age of 60 are significantly undernourished. This figure is confirmed by those with long experience in the field. John Martin, former Commissioner of the Administration on Aging, has testified that:

> Specific information is limited about the incidence of actual malnutrition among the elderly, but such as we have all points in the same direction. . . . It is my strong belief that millions of our older citizens are victims of inadequate nutrition in varying degrees.

Sandra Howell, currently involved in aging research at M.I.T., has concluded that there are 8 million malnourished in the over-65 population alone:

> On the basis of some admittedly crude calculations I have done from research evidence and survey information, it is probably safe to say that 8 million of our 20 million elderly Americans are, at any one time, consuming diets inadequate for optimal health. This calculation is based upon the extreme deficiencies actually picked up in the Ten State Nutrition Survey, several diet record studies, the income status of central city and rural aged poor, and the incidence of chronic disease among the noninstitutionalized aged.

Whatever the exact level, it appears that undernutrition in the elderly is a public health problem of major dimensions. Moreover, it is probable that the relative extent of these deficiencies is even higher for those elderly who are homebound. As was pointed out in Chapter II, the difficulties which afflict the elderly in general are intensified when one is homebound. This problem is borne out by the data of the Joering study, in which those persons with the lowest levels of nutritional status were those who were in need of, but not receiving, home-delivered meals.

2. OVERNUTRITION

The term overnutrition can be very misleading and may even seem contradictory. Yet the same factors which cause such severe nutrient deficiencies in the elderly also bring about an alarming degree of excessive caloric intake. The decline in energy needs which makes it so difficult to select foods with the proper balance of essential nutrients often leads to obesity. Dr. Olaf Mickelsen of Michigan State University explains:

> There is considerable evidence indicating that the caloric intake should be reduced with the advent of old age. This stems from the recognized reduction in the basal metabolic rate which occurs progressively with age. In addition, most people markedly restrict their physical activity as they grow old. These two factors reduce their actual caloric requirements. Unless their caloric intake is reduced accordingly, older people are likely to become overweight.

For the homebound, the element of activity reduction is particularly severe. A person confined to his or her bed has little chance to work off excessive calories.

In addition to these decreased energy requirements, a lifestyle of isolation results in poor food choice. Doctors Solomon and Shock explained this cause in 1969:

> Both social isolation and loneliness enhance the tendency to eat high carbohydrate meals which can be prepared quickly and easily.

Empirical support for this claim was provided by the Davidson study discussed earlier. The researchers rated the subjects according to degree of social isolation and found that those who ranked high on this scale ate a much smaller variety of foods and tended to be more above desirable weight.

Finally, the condition of poverty takes its usual toll. As the Food and Nutrition Board explained in 1974, the need to buy cheaper foods often results in increased consumption of carbohydrates with excessive caloric intake being the inevitable result.

Obesity, then, is a major risk for the aged. Various studies have provided weight statistics which confirm this problem. The Dibble study cited above, for example, found that 67 percent of the females and 46 percent of the males were 10 percent or more overweight. Weight comparisons, however, may understate the true extent of obesity. Such statistics hide increases in fat content, because the non-fat portion of the body often declines with age. Dr. Ladislaw Novak of the Mayo Clinic in Rochester, Minnesota, examined 215 men and 305 women whose ages ranged from 18 to 85 years. Though average weight was lower for those over 65 than the middle-aged groups, fat content of the body steadily increased with age. The relative amounts are shown in table 22.

TABLE 22.—BODY FAT CONTENT BY AGE AND SEX

Age	Fat content (percent)	
	Men	Women
18 to 25	17.79	33.04
25 to 35	21.71	32.22
35 to 45	22.76	35.91
45 to 55	27.39	42.71
55 to 65	29.94	43.52
65 to 85	36.24	44.76

Much of this increase may be due to non-dietary factors such as morphologic changes of certain tissues. But, even to the extent that this is true, it only heightens the need for careful restriction of caloric intake.

The Ten State Survey attempted to measure obesity in 3,020 individuals over the age of 55. Defining obesity as a fatfold measurement greater than the 85th percentile of measurements of young white adults, the survey found that 27.4 percent of this group was obese. HANES also attempted to measure obesity, but the only breakdown by age available is the 45–74 year group.

Thus, the elderly seem to be faced with two severe problems in old age: nutrient deficiency and obesity. The following section evaluates the health harms attributed to such malnutrition.

D. The Impact and Effect of Malnutrition

The tremendous increases in scientific knowledge which have occurred in this century have touched many fields. One of the most notable areas is nutrition. Yet, despite the tremendous amount of

work devoted to examining the interrelationships of diet and health, many important relationships need to be examined more closely.

Problems of funding and practicality have significantly hampered nutrition research. For example, there is a great deal of uncertainty as to the exact effects of nutrient deficiencies.

What information does exist, however, indicates that the current lack of specificity may significantly understate the prevalence of nutrition-related disorders. At minimum, the analyses performed by the Food and Nutrition Board and others in the field indicate that the degree of malnutrition experienced by the Nation's elderly exacts a tremendous price in terms of health. A brief sampling of the available research on specific deficiency effects can verify this conclusion.

Energy and protein

Though the problem of excessive caloric intake appears much more visible in this country, the implications of insufficient energy must also be weighed. The Recommended Dietary Allowance for calories is set, according to the Food and Nutrition Board, "at the *lowest* value thought to be consonant with good health of average persons in each age group." Though needs certainly differ between individuals, it cannot be claimed that very low intakes present no difficulty. There is a basic minimum level which must be met. The Food and Agriculture Organization of the United Nations explains:

> Since the body continually converts and replaces it component parts, energy is needed for synthesis of new organic substances in this continuing process of maintenance. . . . The body also has to have energy for internal work, such as the action of the heart in circulating the blood and the movements of the diaphragm in breathing. Less obvious is the work done in maintaining the concentrations of salts and ions in the cells and body fluids. Sodium and chloride are the main ions in the blood, and potassium and phosphate in the cells. The difference in the ionic composition of the fluids inside and outside the cells is essential to their normal functioning and can only be maintained by chemical reactions utilizing energy.

One special problem in the "energy crisis" in the elderly is the impact on protein utilization. As the FAO points out, energy is needed to fuel protein synthesis in the body in order to assure continuing maintenance. In addition, when an energy deficit occurs, some protein must be shifted to this purpose and is therefore not available to satisfy protein needs. The importance of assuring adequate protein intake in the elderly was explained by Dr. Anthony Albanese, director of the Nutrition and Metabolic Research Division of the Burke Rehabilitation Center:

> In the elderly, liberal amounts of good quality proteins are especially important to counterbalance the prevailing catabolic processes of old age.

Thus, though growth is not an important consideration for the aged, maintenance neeeds demand adequate intake of protein.

Vitamin C

Richard Vilter, in *The Vitamins*, explains some of the effects resulting from a deficiency of ascorbic acid:

> The first symptoms reported . . . are weakness, easy fatigue, and listlessness. These are followed quickly by shortness of breath and aching in bones, joints, and muscles of the extremities. Appetite is moderately reduced, but most patients continue to eat well until swollen painful gums prevent mastication. The skin usually becomes dry and rough, dingy, and brown from increasing pigmentation. In a human subject on a diet free of ascorbic acid but adequate in other nutrients, fatigue and poor performance on a treadmill appeared after 90 days. . . .

Other evidence paints a picture of even darker possibilities. Agnes Fay Morgan, analyzing data from the San Mateo County survey discussed earlier, reached the following conclusion:

> A more unexpected correlation was that of mortality with low ascorbic acid intake, significant at the one percent level. The mortality of those who had less than 50 mg. ascorbic acid intake per day was 49 percent higher than expected, but that of those with intakes over 50 mg. per day was 20 percent less that expected.

Though such a correlation does not indicate that the increased mortality was a direct result of vitamin C lack, the potential implications are severe indeed.

Iron

The importance of iron intake was assessed by the FAO in 1974:

> Iron is a component of haemoglobin, myoglobin, the cytochromes, catalase, peroxidase, and certain other emzyme systems. As a part of these haeme complexes and metallo enzymes, it serves important functions in oxygen transport and cellular respiration. . . . Despite the very small amounts in the body, iron is one of the most important elements in nutrition and of fundamental importance to life. . . . Iron-deficiency anemia is a medical and public health problem of primary importance, causing few deaths, but contributing seriously to weakness, ill health, and substandard performance.

Indeed, the biochemical measurements shown in the previous section indicate that, especially for the hemoglobin tests, older individuals suffer greatly from anemia. Dr. Jean Mayer reports that

> Iron-deficiency anemia is very high among the elderly. Our own studies in the Department of Nutrition at Harvard show that in Boston, in the Roxbury section, up to 25 percent of the elderly are anemic, both among men and women.

Calcium

Another mineral, calcium, also is of great importance. Bone, once formed, is not permanent. There is a constant turnover in adults of approximately 700 mg. of calcium daily. A large portion of this amount is excreted each day, ranging from 50 to 300 mg. according to the FAO. At all ages, there must be sufficient intake to cover these losses. The result of inadequate intake is generally a softening of the bones—osteomalacia.

There is some disagreement as to whether inadequate intake of calcium also contributes to the incidence of osteoporosis in the elderly. The impact of this disease was explained by Dr. Leo Lutwak of the Los Angeles School of Medicine:

> Osteoporosis may be defined as a condition of too little bone. Radiographically, it cannot be diagnosed until approximately 30 percent of bone mineral has been lost. By this stage, mechanical instability of bone and resulting fracture may have occurred. Various surveys have indicated that approximately 30 percent of women over the age of 55 and men over the age of 60 have had sufficient mineral loss to have produced at least one fracture. . . . According to epidemiologic studies, at least 12 million women in the United States have sufficient osteoporosis to have produced vertebral fracture.

The exact role of calcium in this problem, however, is disputed. The FAO reports that:

> Orthodox medical opinion holds that both the growth and atrophy of bone proceed at rates which are independent of the calcium in the diet.

Dr. Lutwak has criticized the support for such a conclusion. He offered claims to the critical role of calcium in 1974:

> Dietary surveys of patients with osteoporosis have generally indicated that these individuals have been consuming diets lower in calcium content than age-matched populations without bone demineralization. Metabolic balance studies have shown that such patients are in negative calcium balance and that, when dietary calcium is increased, calcium balance eventually becomes positive, indicating retention of calcium. . . . The rational preventive theraphy for osteoporosis . . . would be supplementation of the diet with adequate amounts of calcium.

Given the great risks involved, it appears that this area should receive further attention from researchers. In the interim, the only valid conclusion possible seems to be that stated by Dr. Willard Krehl:

> It makes good nutrition sense to insure an adequate intake of calcium as well as magnesium and other minerals and vitamin D to minimize the hazard of osteoporosis . . .

Vitamin A

J. G. Chopra and Dr. J. Kevany, writing in the American Journal of Clinical Nutrition of February 1970, explain the problems caused by insufficient intake of vitamin A:

> Abnormalities of the eye are the only reliable signs for diagnosing clinical vitamin A deficiency in man . . . The ocular changes indicating vitamin A deficiency are nyctalopia, xerophthalmia, and keratomalacia. Nyctalopia, or night blindness, is caused by loss of function of the rods and is manifested by impairment of vision at low light intensity. It is preceded by a decrease in dark adaptation. Xerophthalmia is a dyskeratosis of the transparent epithelia of conjunctiva and cornea exposed to the atmosphere and to the light in the interpalpebral space. The conjunctiva shows "xerosis" that is evidenced by poor maintenance of the covering film and the keratinization of the epithelium resulting in an unwettability by tears, combined with opacity, and stiffness of the conjunctiva manifested as thickened folds, especially on movements of the eye. Keratomalacia consists of softening of the entire thickness of a part, or more often the whole, of the cornea, invariable leading to deformation or destruction. The process is a rapid one, the corneal structure melting into a cloudy gelatinous mass; extrusion of the lens and loss of vitreous humor may occur. Vision is invariably and irreversibly affected to a varying degree.

The B vitamins

Three vitamins which have been rarely included in nutritional status surveys of the elderly are B_6, B_{12} and folic acid. But this does not imply that they are unimportant. Their impact on the elderly was reported by Dr. Krehl in 1974:

> A combination of nutritional anemias may coexist in elderly persons, most often iron-deficiency anemia and deficiencies of either folic acid or vitamin B_{12} or both.

Some of the potential effects of vitamin B_{12} deficiency were reported in the American Journal of Clinical Nutrition in October 1973:

> In a double-blind study of 35 elderly subjects ranging in age from 65 to 90 years, all of whom had previously complained of fatigue, Rafsky observed that upon administration of vitamin B_{12} the symptoms of fatigue disappeared in 89 percent of the participants; upon replacement of the vitamin with placebo, the symptoms returned. Another investigator reports that elderly patients may be disoriented and confused as a result of a deficiency of vitamin B_{12} rather than because of cerebral atheroma, which is often assumed to be the underlying lesion.

H. E. Sauberlich and John Canham have studied some of the effects of vitamin B_6 deficiency:

> Subjects on a vitamin B_6 deficient diet have been observed to develop personality changes manifested by irritability,

> depression, and loss of the sense of responsibility. The subjects also developed filiform hypertrophy of the lingual papilla, aphthous stomatitis, nasolabial seborrhea, and an acneiform papular rash of the forehead. Abnormal electroencephalograms were observed. . . . Pyridoxine (vitamin B_6 form) repletion corrected all of the abnormalities noted.

The deficiency symptoms cited above do not represent a comprehensive review of the available research. Further, the relatively unadvanced state of the science of nutrition illustrates the tentative nature of conclusions about such diet impacts. Yet these findings clearly indicate a range of nutritional problems which must be dealt with by policymakers. Public health problems of such degree cannot be tolerated.

Obesity

The harmful impact of obesity is equally tremendous. A study by the Society of Actuaries of 4.9 million individuals who purchased life insurance from 1935 to 1953 indicated that obesity led to increased mortality from cardiovascular diseases, diabetes, nephritis, and diseases of the gastrointestinal tract. Doctors Farquhar, Hirsch, and Stunkard have concluded that:

> Obesity is considered to be an important contributor to many different disorders such as coronary heart disease, hypertension, stroke, diabetes, gall bladder disease, arthritis, pulmonary dysfunction, sleep disorders, social disability, and decreased ability to withstand trauma or surgery.

Finally, Doctors Mickelsen and Schlenker of Michigan State report that

> The evidence for a relation between obesity and morbidity for some diseases is so convincing that a number of years ago Mayer suggested that the prevention of obesity is a major means of preparing for a healthy old age. If that advice were followed, then, according to Jolliffe, life expectancy would be increased by an average of four years. That, he declared, is greater than the two year increase that might result from the discovery of a cure for cancer. Furthermore, a lean individual is less likely to develop cancer than an obese.

The aging process and nutrition

The effects of malnutrition cited above, however, are not the whole story. Gerontologists have begun to study the basic processes of aging in an attempt to determine the impact of nutrition. There is a growing feeling that, among the environmental factors affecting the health of the elderly, nutrition ranks near or at the top of the list in importance. As a research group at Michigan State University points out:

> Many factors determine the health and longevity of older people. Over some of these, the individual has little control, e.g., heredity, whereas others are mutable by public health measures, such as air and water quality and exposure to biological pathogens. Still others are subject to personal control, e.g., food, smoking, and physical activity. One's

nutritional status and food habits may be important components of life, having far-reaching effects on health and rate of aging. Proper nutrition throughout life has been suggested as one of the best means of minimizing degenerative changes and their superimposed diseases.

Dr. Nathan Shock, then the chief of the Gerontology Research Center in Baltimore, explained one such possibility in 1970:

> We know that one of the primary problems of aging is a gradual loss of cells which may stem from environmental conditions, such as inadequacies in cellular nutrition. Thus, the field of nutrition remains an area that must be explored in greater detail.

Empirical data supporting the critical role of nutrition has been provided in some nutritional surveys. Dr. Eleanor Schlenker of Michigan State described the results of one such effort:

> In 1948, Ohlson and Associates randomly selected a sample of 97 women, representative of all socioeconomic levels within the Lansing community. At that time the group ranged in age from 40 to 80 years. Over the next seven years, at selected intervals, these investigators collected dietary records and information regarding living arrangements and socioeconomic status. Evaluation in 1955 revealed that physical well-being was directly related to nutrient intake; physical complaints, such as unexplained tiredness or repeating pains, were more frequent among those with poorer diets. Mortality over the seven year period was higher in those reporting intakes of less than 40 percent of the Recommended Dietary Allowances (RDA) for at least one nutrient.

Dr. Schlenker and associates from Michigan State reanalyzed this group in 1973. At that time, 52 of the original subjects were deceased. The researchers found, through examination of death certificates, a positive relationship between prior dietary intake and the age at which death occurred. These findings agreed with those reached by Chope in studying the San Mateo County subjects. Dr. Schlenker writes:

> Low intakes of vitamin A, niacin, and ascorbic acid were observed four years prior to death among 49 individuals 50 years or older studied by Chope. Among the remaining 306 subjects resurveyed, low hemoglobin was associated with higher incidence of respiratory disease, and low vitamin A intake was correlated with an increased incidence of nervous, circulatory, and respiratory disorders. Low thiamine intake was associated with diseases of the nervous and circulatory systems; both disorders decreased as thiamine intake increased.

In addition to these physical problems, nutrition plays a strong role in mental illness. Several nutrient deficiencies have been linked to mental health. As Dr. Mayer concludes:

> Senile or atherosclerotic psychosis and depression often have strong components related to food.

The National Voluntary Organizations for Independent Living for the Aged (NVOILA) documented the overall problem in June of this year:

> Mental illness, particularly depression, increases with age. Though ten percent of the U.S. population is over 65, this group annually accounts for 25 percent of mental hospital admissions. Older persons suffer from a complexity of mental disorders, many linked to physical illness intensified by unmet personal needs.

The potential for aiding the elderly who enter hospitals for geriatric and psychiatric care was explained by Dr. Maurice Linden in testimony before the Select Committee:

> Experience with over 1500 patients in a period since 1966 . . . has demonstrated, in two institutions in Philadelphia, that the capacity for response to a total program on the part of older people, including good nutrition and a good diet in the hospital, is tremendous; much greater than perhaps even we who tend to be optimistic in the field of gerontology had predicted. . . . About 93 percent leave the hospital and go back to some form of community living. Only about five percent have had to go on to longer term psychiatric institutions such as State hospitals. For those of you who know the figure over the years, this is almost a complete reversal of our earlier experiences with older people. Most now stay out of long-term hospitals. . . . The average period of care is approximately 42 days which we think is quite remarkable. . . . I have concluded from the foregoing and other observations that the rapid improvement of the elderly patients in large measure may well have been owing to the immediate attention to dietary needs.

Unfortunately, a major barrier to the accrual of such advantages is the attitude we have about old age. Dr. Sylvia Sherwood, Director of Social Geronotological Research at the Hebrew Rehabilitation Center for the Aged in Boston, explained this difficulty in 1973:

> There are also important relationships between malnutrition and behavioral states of irritability, moodiness, depression, and the inability to make decisions. These are some specific behaviorisms that are often quite descriptive of elderly persons. A question may be raised concerning the extent to which such symptoms are related to undiagnosed malnutrition. It is possible that this kind of diagnostic stereotype applied to the elderly may have detrimental consequences. Irritability and other manifestations of semi-starvation and nutrient deficiency, along with "aches and pains" may be anticipated and tolerated because they are accepted as an inevitable accompaniment of aging. If these manifestations are not considered symptoms of poor health, but are accepted merely as signs of growing old, then pathological conditions that may be related to nutritional deficiency may be overlooked in the aged population.

The total impact of all of these individual nutrition problems is felt at the societal level as well. John Martin, in testimony before the Select Committee, has stated that:

> Turning to the implications of malnutrition among the elderly for society, we find that, apart from humanitarian considerations and considerations of the quality of our society, there is undoubtedly a public cost through Medicare, Medicaid, and other publicly supported programs for the health and welfare of the elderly. There is also a heavy public cost in mental health programs. There is no data on the extent to which the costs of these programs are increased by malnutrition among older Americans, but there are good reasons to believe that an investment in improving the nutrition of this age group would be substantially offset by savings in other publicly financed programs.

Senator Charles Percy has confirmed this judgment:

> We are really talking about an investment that can be justified in the most conservative terms possible, not even in humanitarian terms which ought to be first, but in fiscal where it is absolutely sound.

It appears then, that the advantages of nutritional support for the elderly are clear at every level of analysis. Faced with extremely difficult choices, the elderly have succumbed to a degree of malnutrition which not only exacts a heavy health toll but severe public costs as well.

E. Guidelines for Action

In attempting to fashion solutions to the problem of malnutrition in the elderly, we must be careful to avoid the haphazard and piecemeal approach which has contributed to our current dilemma. Thus, several guidelines are needed. First, we must realize that adequate nutrition is a lifelong endeavor. We cannot begin our efforts at age 60. Therefore, we must attempt to achieve early and continuing nutritional adequacy. This should be accomplished by assuring citizen awareness of nutritional needs and by providing food support to those who need it. Once such preparation for old age has been set up, our task will be far easier.

Second, once a person reaches the "golden years," we should make every effort to provide a stable and sufficient guarantee of nutritional adequacy. The Title VII program is an excellent step in this direction, but it has been proven inadequate to meet the dietary needs of more than a small fraction of elderly. Thus expansion of both congregate and home-delivered support is vital. The Joering study discussed on page 25 provides excellent quantification of the reduction in undernutrition which may be expected. The National Council on Aging has confirmed that view:

> The elderly react positively to dietary improvement for they retain the capacity to build new body tissue and to mineralize their bones when their diets include the required nutrients in adequate quantities, provided they do not suffer from specific diseases which inhibit these body processes.

> Great numbers of older people, particularly those who live in poverty, or on its fringes, do not, however, receive sufficient quotas of the foods that provide the needed nourishment that their systems could utilize. Providing nutritionally adequate diets, therefore, becomes an important weapon in combating health problems in the elderly, supporting emotional stability, extending work capacities and maintaining life.

Obesity too would be reduced by these programs. First, the provision of balanced meals and nutrition education would help lower caloric intake to proper levels. Second, the reduction in isolation brought about by the socialization element of Title VII would cut down one of the basic causes of excessive consumption.

Finally, these improvements would bring about tremendous intangible benefits. Administration on Aging nutritionist Jeanette Pelcovits reports that:

> Participants' actions and reactions demonstrate that the benefits are substantial. They reflect this in improved appearance and dress, greater interest in other people, involvement in group activities, and renewed vitality and mental outlook. Members of their families often remark that involvement in the program has made them less demanding and more self-reliant. It is common to hear such remarks as, "Without this program, I'd be in the hospital," or "I am a different person altogether."

Surely, we owe it to our senior citizens, as well as to ourselves, to more fully meet the nutritional needs of the aging.

Chapter IV

POLICY OPTIONS FOR MEETING THE NEEDS OF THE HOMEBOUND ELDERLY

Current Government nutrition efforts and Government programs providing services for the elderly have not adequately met the nutritional needs of the homebound elderly. Several meals-on-wheels provisions exist within large Government programs (Food Stamps, Title XX of the Social Security Act and Title VII of the Older Americans Act), but the combination of these components provide only minimal nutritional assistance for the homebound. If the uniquely compelling nutritional needs of the homebound elderly are to be alleviated, funds must be appropriated for this specific purpose.

A. Food Stamps

The 1973 Amendments to the Food Stamp Act included for the first time a meals-on-wheels provision for the elderly. Under this provision, homebound elders with income below the food stamp eligibility criteria were allowed to use their stamps to purchase meals-on-wheels services. Though this amendment was a positive addition to the Food Stamp Act it did not satisfy the nutritional needs of the homebound.

The primary problem is that food stamps are intended for the poor, but the nutritional problems of the elderly stem from a multitude of causes, only one of which is poverty. This poverty orientation prevents the food stamp program from reaching many of the homebound who desperately require assistance. The homebound with incomes above the food stamp income eligibility threshold can not qualify for food stamps and therefore can not use food stamps for meals-on-wheels services.

Even for the homebound elderly whose inability to attain an adequate diet is income-related, food stamps remain an inadequate source of nutritional support. For these people, access to the food stamp program is difficult because of a number of food stamp program requirements.

First, the homebound, by definition, have severe disabilities which make leaving home painful if not totally impossible. Yet, in order to be certified for food stamps, a person must generally go to a food stamp office and often wait to be interviewed. To receive the stamps requires another trip to another office. A homebound person may have an authorized representative apply for him or her, but finding someone willing to undertake this tedious task is difficult for the isolated older person.

Second, food stamps are of little help to the many elderly who are homebound on a temporary basis, such as a few months. All food stamp recipients must undergo a time-consuming certification process. By the time the stamps become available, the individual's need for nutritional assistance has often ended.

A third barrier to participation is the purchase price requirement. All food stamp recipients must pay an amount up to 30 percent of their monthly net income to receive their stamps. Poor people are faced with an economic situation which makes the financial benefits of the food stamp program difficult to realize. Many of the most impoverished homebound are simply unable to pay their monthly purchase price, and thus are unable to receive their stamps. In addition, many poor families are unwilling to spend a large portion of their small incomes early in the month although the eventual benefits are substantial. Sandra Howell and Martin Loeb described this problem in "Nutrition and Aging," published in the Autumn 1969, issue of the Gerontologist:

> Albeit irrational from the standpoint of middleclass, educated person who is future-oriented and "appreciates" the relatively good return offered for investment in food stamps, the poor person, with no cash savings and no borrowing resources, cannot feel secure in obligating his meager income in advance.

For the homebound person, who never knows when an expensive medical emergency may arise, the disincentive to invest that money in food stamps is greater than it is for the poor in general.

Finally, like all elderly, the homebound elderly resent the "welfare" implications of the food stamp program. Food stamps are usually administered through State welfare agencies. After a lifetime of work and taxes, the elderly do not wish to submit to questions about their finances and resources. The result is that many poor elderly would rather not participate in the food stamp program than be associated with the program's perceived stigma.

B. Title XX of the Social Security Act

Title XX of the Social Security Act became law on October 1, 1975. It represents a new approach to the provision of social services, emphasizing decentralized planning with the States determining the type and scope of services to be used. Basically, the title provides $2.5 billion to the States in the form of block grants and places only broad limits on how the money may be spent. Unfortunately, this alternative has also failed to provide significant support for Meals on Wheels.

As with Food Stamps, Title XX is meant to serve the needs of the low-income population. Thus, many of those in need are not even eligible. Even for those who are eligible, the means test prevents adequate participation. Jody Olsen explained to the Select Committee the experience of Meals on Wheels of Central Maryland with Title XX funds:

> The eligibility requirements are demeaning to those who are potentially eligible. Most older people have worked all their lives, paid taxes, and contributed to the general

> welfare of the community. They are on fixed, limited incomes and are adjusting to increasing difficulties in physical and mental mobility. To have to go through the verification and reverification of income and other eligibility requirements is an insult to their dignity and basic human worth. We have had many potentially eligible clients refuse to continue with the service rather than submit to the process of determining eligibility. These are clients that we are certain are eligible for service under Title XX.

In addition to these disincentive effects, the eligibility determinations drain the time of program staff as well as the available funds. Representative Elizabeth Holtzman provided a dramatic example of this waste in her testimony before the Subcommittee on Public Assistance of the House Ways and Means Committee in March of 1976:

> (To administer the means test in its senior centers) . . . New York City will have to spend in the first year 37 percent of the amount it uses for the centers. In subsequent years, 25 percent of the program funds will go to the means test.

Even for those who submit to the means test, Title XX remains inadequate. The priorities of funding allocation are left to each State to decide, and the result, for meals on wheels, has been far from encouraging (see table 1). Marjorie Collins, Associate Director of the National Council on Aging, told the Select Committee that:

> We had hoped that Title XX of the Social Security Act would be a new source of funds for Meals on Wheels programs for the elderly. To date, our hopes have not been realized. Title XX provides a limited amount of service dollars over which groups in need of service are forced to compete at the local and State levels. Traditionally, the elderly have never fared very well under such a program. Thus, while 35 States report the inclusion of Meals on Wheels programs in their State Title XX plans, almost half do not provide the service statewide, and the percentage of Title XX monies is less than 1 percent in most States.

TABLE 1.—HOME DELIVERED AND CONGREGATE MEALS SUPPORTED BY TITLE XX [1]

	Estimated expenditures for meals	Percent of total title XX plan expenditures	Estimated number of clients to be served	Home-delivered, congregate, or both
Alabama	$484,162	0.86	1,375	H/C
Alaska				
Arizona				
Arkansas	499,947	1.80	1,731	H
California	(2)			H/C
Colorado				
Connecticut	(2)			H
Delaware				
District of Columbia				
Florida	672,287	.34	1,873	H
Georgia	419,800	.54	5,756	H/C
Hawaii				
Idaho	169,397	1.40	2,643	H
Illinois				
Indiana	2,464,751	6.00	4,167	H/C
Iowa	198,360	.43	1,844	H/C

See footnotes at end of table.

TABLE 1.—HOME DELIVERED AND CONGREGATE MEALS SUPPORTED BY TITLE XX [1]—Continued

	Estimated expenditures for meals	Percent of total title XX plan expenditures	Estimated number of clients to be served	Home-delivered, congregate, or both
Kansas	$250,000	0.69	766	H
Kentucky				
Louisiana	2,331,725	4.00	4,005	H
Maine	530,500	3.30	1,800	H/C
Maryland	349,333	.54	1,061	H
Massachusetts				
Michigan	(2)			H/C
Minnesota	134,641	.22	1,479	H/C
Mississippi	52,067	.31	287	H/C
Missouri	1,187,893	1.70	27,136	H/C
Montana	183,334	1.60	5,551	H
Nebraska	322,800	1.30	NA	H/C
Nevada	138,514	1.70	461	H
New Hampshire	378,934	3.10	1,416	H
New Jersey	149,783	.13	500	H/C
New Mexico				
New York	(2)			C
North Carolina	593,059	.71	9,144	H
North Dakota	(2)			H
Ohio	271,736	.16	12,789	H
Oklahoma	1,333,334	3.20	1,727	C
Oregon	62,813	.19	NA	H/C
Pennsylvania	5,977,010	3.20	28,367	H/C
Rhode Island				
South Carolina	326,386	.80	1,114	H/C
South Dakota				
Tennessee	322,212	.50	3,025	H/C
Texas	498,792	.26	710	H/C
Utah	(2)			H
Vermont				
Virginia	545,109	.72	6,285	H/C
Washington	8,097	.01	533	H
West Virginia	196,016	.70	580	H/C
Wisconsin	204,000	.26	4,114	H/C
Wyoming				

[1] Not limited to aged, but is likely to encompass a significant proportion of elderly recipients.
[2] Meals service is considered as a component of another service.

This was essentially the same conclusion reached by another aging organization, the National Council of Senior Citizens. Executive Director William Hutton testified before the Select Committee that:

> It is vital to understand, however, the very limited function Title XX serves in feeding the poor. The Administration on Aging estimates that the Title XX nutrition service, which includes both congregate and home-delivered meals, receives only about one percent of total funds allocated under Title XX. We would be hesitant, indeed, to depend upon this title to substantially alleviate the problems of our homebound and underfed elderly citizens.

C. Title VII of the Older Americans Act

Title VII of the Older Americans Act, known as the Elderly Nutrition Program, began with a series of demonstration programs carried out by the Administration on Aging under Title IV of the Older Americans Act. The projects were designed to test a variety of meal service delivery systems to assess the ideal framework within which to provide nutritious meals and needed supportive services.

In 1972, drawing upon the experience of these demonstration projects, Congress added Title VII to the developing network of services for senior citizens carried out under the authority of the Older

Americans Act. In recognition of the complicated and unique nutritional problems of the aged, the Congress created the program as a congregate activity, stressing group meals as a means of reintegrating the isolated elderly into a social environment. Each meal site provides ancillary services, such as transportation, escort service, recreation, etc.

The program is administered by the Administration on Aging and provides Federal funds for 90 percent of the necessary expenses. Because Congress realized that low income was not the sole cause of malnutrition among the aged, there are no income eligibility standards; anyone aged 60 or over, and his or her spouse, is eligible for the program's benefits.

The Elderly Nutrition Program is widely viewed as an exceptionally successful and popular program. Its medical benefits have been proven and its social benefits can easily be seen by anyone visiting a meal site. Last year, approximately 250,000 persons received a noontime meal each weekday.

Title VII, however, cannot be relied on as a solution for the needs of the homebound elderly. The basic philosophy of the program is to provide meals in a congregate fashion at selected meal sites. Indeed, this emphasis on serving the needs of the ambulatory aged has been maintained despite the fact that no Federal regulation limits the amount of meals which may be home-delivered. The States and projects have realized, quite correctly, that Congress intended the Title VII program to serve groups, not isolated individuals such as the homebound.

The results of this group orientation are made clear in the program's statistics. Of the 250,000 meals served each weekday last year, only 30,000 went to the homebound. Indeed, if the current structure of Title VII were relied on in an attempt to provide increased home-delivered meals, the required budget outlays would be overwhelming, if not impossible. For example, if Title VII were to provide meals for even one-third of the homebound, total Title VII expenditures for congregate and home-delivered meals would have to be 3,000 percent greater than current spending.

Title VII provides an excellent base for efforts to improve the nutrition of the elderly. But it is clear that a more rational approach to the shortage of home-delivered meals is to provide the needed support directly to the homebound through that structure.

D. Private Meals on Wheels Programs

Since the 1954 establishment of Philadelphia's Lighthouse Meals-on-Wheels program, many other communities have begun programs of a similar type. These local programs are most often started by community church organizations, civic associations, or coalitions of concerned citizens. For the most part the persons involved in the organization, from meal deliverers to program director, volunteer their time and effort.

A review of Meals on Wheels programs in the United States, conducted for the Administration on Aging in 1969 by Howell and Loeb, discovered that most local home-delivered meal programs: (1) are located in a metropolitan area; (2) serve 20 to 40 persons; (3) deliver a

mid-day and evening meal five days per week; (4) have the professional assistance of a nutritionist, dietitian or home economist; (5) prepare meals in an agency kitchen and often prescribe modified diets; (6) transport food to the recipient's home and receive payment based on the ability to pay.

Beyond these general similarities, local programs have in common a number of problems which have limited their capacity to serve more than a small portion of those in need of in-home nutrition services. These limitations exist because of the very nature of the local program rather than any failures on the part of these persons who manage them.

FACTORS IN MEAL COST

There are a wide range of factors which contribute to the actual cost of preparing and delivering a meal. These factors include not only the actual cost of the food itself, an item which has increased substantially in price over the past several years, but various other necessary expendtiures. There are, for instance, the initial costs of purchasing kitchen equipment and containers to keep food warm during delivery. There are costs, in many instances, in hiring a cook and professional nutritionist, and for utilities, even when kitchen space is donated. Then, of course, there are incidental expenses for stationery, phone bills, and, occasionally, transportation. These expenses add up and increase the need for a reliable and often substantial cash income for the program.

However, in many, if not most, cases, the fees which these local meals on wheels programs charge are based only on the cost of the food itself. This, of course, makes it easier for the average senior citizen to afford, but leaves an automatic operating deficit which quickly mounts up.

SLIDING SCALE FEES COMPOUND DEFICIT

Compounding the problem, the fees, as the Howell and Loeb study points out, are usually based on the clients ability to pay. Everytime fees are lessened for a particular client, the program loses money on food cost alone.

Too many lower income persons soon become difficult to sustain financially. Jody Olsen explains Central Maryland's difficulties in this regard.

> . . . beginning about 18 months ago, the program has noted a rather dramatic shift in the financial resources of those requesting services. At the beginning of this time period, those paying the least amount (75 cents a meal) averaged about 30 percent of the total client group. This has changed to where at present almost 50 percent of the clients are paying this amount. In short, more and more low income elderly are applying for the program. On the one hand, it is important that the program respond to this expressed need of low income elderly, but on the other, this shift is creating a program deficit, since on the average, it actually costs the program $1.23 per meal. The program wants to serve everyone eligible for service, but is finding the financial task of doing so increasingly difficult.

This problem, increasingly faced by nearly all meals on wheels programs, has necessitated higher levels of outside financial support. Community sources for these funds in many instances have been very supportive of meals on wheels programs, but the funds available from these sources are obviously limited. Furthermore, it has been noted by Committee staff that these funds are not as easy to obtain on a long term basis nor for the programs which are just beginning and have yet to establish a credible reputation in the community.

The predictable limitations in the amount of outside funding sources have resulted in a stunting of the scope of local programs. They are able to meet most of their deficits, but are prevented from expanding to serve more needy persons. Dr. Douglas Holmes, Director of the Center for Community Research, confirmed this conclusion in testimony before the Select Committee in September of 1969:

> Experience has shown that programs for the aged are deficit operations. This is particularly true in such as nutrition programs, in which there are considerable costs associated with the delivery of services. Despite any efforts to develop local, private support for nutrition programs, it appears most doubtful that such programs can be maintained by most agencies, without major public support. Objective research data validates the utility of such programs; yet their continuation is unlikely within the budgetary frameworks of most private agencies.

In short, though private programs have played an exceptionally vital role in providing needed service to the homebound, it is unlikely that, even under the most optimistic circumstances, they will ever be able to meet more than a small portion of the need which exists in every community. Public assistance for private programs appears essential to expand the scope of the current effort.

E. S. 3585—The National Meals on Wheels Act of 1976

As we can see from the previous examination of Food Stamps, Title XX, and Title VII, no governmental program has yet been specifically designed to provide nutritional assistance to the homebound. If Congress intends for such needs to be met, it must opt for a new and direct allocation of support to this critically dependent group. The nutritional problems of the homebound elderly cannot be alleviated through current policy options.

Perhaps the most impressive endorsement of the need for a separate and additional commitment to the homebound elderly came from the Select Committee's comprehensive 1974 National Nutrition Policy Study. The study brought together a number of panels for a series of hearings in various vital nutrition issues.

One panel of 26 leading experts, including nutritionists, economists, government officials, community activists, low-income people, and others—worked together for several months to develop a series of recommendations for nutrition and special groups. In its review of feeding programs for the aged, the panel's first recommendation for necessary new legislation was for the establishment of a national meals on wheels program operated through and in conjunction with Title VII. The panel concluded,

There must be comprehensive legislation establishing a national home-delivered meals program. As the congregate meal programs have been established the need for a national "meals on wheels" program has become more apparent.

The emphasis of Title VII is on group feeding. Feeding programs in a social setting are vital to the nutritional status of many isolated elderly. Yet there are many who cannot participate in such programs because of physical disabilities, inclement weather, substantial distances between their homes and the group feeding site, etc. Title VII, with its emphasis on group programs, cannot meet these needs. A separate funding mechanism which may be administered through agencies already equipped to prepare meals for the elderly is needed.

Since the time of these hearings, the idea of a national meals on wheels amendment to Title VII has received widespread and enthusiastic endorsements from many agencies and organizations, including the National Council of Senior Citizens, the National Council on the Aging, the National Association of Home-Delivered and Congregate Meal Programs, Food Research and Action Center, nearly all of the Nations State Offices on Aging, and many more.

On June 17, 1976, Senator George McGovern, Chairman of the Select Committee, along with three other Committee members, Senators Percy, Kennedy, and Dole introduced S. 3585, the National Meals-on-Wheels Act of 1976.[1] This bill, an amendment to Title VII, would provide an additional $80 million in fiscal year 1977 and $100 million in fiscal year 1978 to be used specifically for home-delivered meals.

The National Meals on Wheels Act is an attempt to achieve a harmonious blend of Federal assistance with private initiative. While the implicit assumption of the bill is that the private sector lacks sufficient resources to meet the needs of the housebound, S. 3585 recognizes the proper and vital role of private organizations. Language in the proposed legislation specifies that State Agencies give preference to local meals on wheels groups in awarding grants. As explained in a later section, the grants may be awarded through the existing structure of Title VII by contracts to the private groups. In this way the volunteer groups retain reasonable control over their own projects, yet have sufficient resources to allow considerable expansion of their nutrition services.

S. 3585 would also require maximum cooperation between the Title VII congregate program and home-delivered meal projects for referral and other purposes. Under the proposed legislation, when an elderly person in the congregate program becomes disabled or otherwise limited in mobility, that person would be referred to the contracting meals on wheels group. By the same token, when a temporarily disabled person regains mobility, that person would be referred back to the congregate program and home-delivered services would cease.

Some concern has been expressed that an expanded meals on wheels component would undermine efforts to reintegrate the isolated elderly into the society. The fear is that persons capable of attending a group

[1] See Appendix A, p. 81.

meal site would instead become dependent on meals delivered to their homes.

Again, the Title VII Survey attempted to assess the validity of this concern by asking project directors if such an expansion would undermine the congregate program. Surprisingly, only 9 of the 125 directors responding believed this to be a serious problem. The staff summary notes:

> . . . project directors overwhelmingly believed that this danger could be ameliorated by carefully shown guidelines. Indeed, several noted that a program of home-delivered meals would increase the contact between the isolated and project personnel and thereby improve the project's ability to encourage the congregate involvement of those who are sufficiently mobile.

This continuum of nutrition service is vital for the senior citizen. As it is now, and in the absence of Federal support for meals on wheels, very few elderly will benefit from any kind of in-home nutrition service.

Chapter V

MEALS ON WHEELS AS AN ALTERNATIVE TO INSTITUTIONALIZATION—THE POTENTIAL COST SAVINGS

The Background

Policymakers, in analyzing budget priorities, often attempt to balance the benefits of a program against the money necessary to fund that program. The goal of such efforts, minimizing the burden on the American taxpayer, is a worthy one. Unfortunately, these budget reviews sometimes place excessive emphasis on short-term costs while ignoring long-term benefits.

Perhaps nowhere is this problem more apparent than in the field of health care. In fiscal year 1975, the Nation's health bill reached $118.5 billion, an average of $547 per person. Since 1965, health care outlays, as a proportion of GNP, have risen from 5.9 percent to 8.3 percent. Numerous experts have claimed that much of this money could be saved by shifting to a more preventive approach. The present system, they claim, is too concerned with solving problems after they arise rather than with preventing them. The General Accounting Office confirmed this belief in 1972.

> The importance of preventive efforts gaining greater attention and acceptance than they have in the past takes on increasing significance as more individuals are either provided access to or strive to obtain adequate health care. Unless such attention and acceptance is forthcoming, the present delivery system, which emphasizes treatment and not prevention, probably will become overburdened and will not be able to meet these demands.

A policy of prevention, of course, cannot be offered as a panacea for our budget problems. But we have an obligation to measure cost-effectiveness in a manner which ensures maximum use of our budgetary resources.

In the field of geriatrics, it has become almost axiomatic that the optimal system of care for the elderly is one which offers a flexible continuum of services between independent living and institutionalization. Such a continuum, unfortunately, does not exist. For those who wish to remain in their own homes, income maintenance is the only aid. If a person is unable to maintain self-care, however, his options are limited. For hundreds of thousands of elderly, the nursing home is the only ready alternative. One out of five senior citizens will enter a nursing home at some point of his/her life. Elaine Brody of the Philadelphia Geriatric Center explains the basic problem:

> Studies that have been carried out and the accumulated knowledge of professionals indicate that, in the main,

existing services are inadequate and inappropriate to the needs of older people.

Many persons experienced in the delivery of services to the elderly now believe that one of the most critical services needed is home-delivered meals. The view expressed by Marjorie Collins of the National Council on Aging in testimony before the Select Committee is representative:

> Home-delivered meals are a crucial component to those community services which enable older persons to maintain their independence and avoid unnecessary and costly institutionalization.

This section, then, has two purposes: (1) To examine the potential trade-off between meal delivery and institutionalization; and (2) to determine with reasonable accuracy the degree of cost-savings which might result.

Potential Cost Savings

Both Medicare and Medicaid emerged only after intense and lengthy debate and compromise, and have protected many of our citizens from the prospect of becoming medically indigent. Despite early fears of "socialized medicine," however, they were far from comprehensive. They offer inconsistent and incomplete assistance and thus fail to provide care in a cost-effective fashion. We take the supposedly convenient choice of an acute-care emphasis, and then we wonder why both costs and need for such care rapidly increase. Dr. Philip Weiler of the University of Kentucky Medical School described this essentially backward approach in 1974:

> Although it seems obvious, we have been late in realizing the acute-care model cannot fit the problems of long-term care. Long-term care requires that the social needs of the patient be given primary importance and the medical needs secondary importance. Medical needs must be structured into a matrix of other needs and not *vice versa*. Success cannot be measured in "cure" terms, but in the level of functioning of the patient in relation to a broad spectrum of parameters (e.g., physical, medical, social parameters, activities of daily living, mental health, and family life). . . . Especially since the advent of Medicare and the subsequent demand on health services for the elderly, it has become evident that the planning for such services based on the acute-care model is totally cost-ineffective.

One of the basic reasons for this lack of cost-effectiveness is the lack of alternatives to institutionalization. As a person grows older, physical and mental limitations become prevalent. These problems are not of the all-or-nothing variety, however: there is no sharp line between self-care and institutional care. Indeed, as demonstrated in earlier sections, the homebound elderly are a heterogeneous group linked by one need: support in their own home. They do not all need the *same* supportive services; thus, the most effective approach is to provide the specific, necessary level of service, or as close to that level as possible, for each senior citizen.

Too many of these intermediate services, however, are missing from current programs for the aged. Helen Kistin and Robert Morris of Brandeis University's Levinson Gerontological Policy Institute summarized the empirical support for this claim:

> There is mounting and consistent evidence that many elderly and handicapped persons are placed in nursing homes and other institutions not for medical reasons but because essential services to maintain them in their own homes and communities are lacking.

The exact degree of this failure was the subject of research by Liz Karnes of the University of Nebraska at Omaha. She found that:

> Studies carried out by gerontologists in the last several years are even more disturbing. As many as 40 percent of the elderly in nursing homes do not really need to be there.

Applied Management Sciences, in a 1975 report to HEW, reported the obvious financial implications of such misdirected efforts.

> What emerges from the studies (on inappropriate institutionalization) is a conviction that various types of alternatives to institutionalization are needed and that these alternatives, properly conceived and financed, will offer a socially satisfactory solution to the dilemma of public funds being supplied in support of inappropriate and expensive long-term institutional care.

Indeed, the nursing home industry has undergone tremendous growth in the last 10 years. As of 1974, there were 15,700 homes holding 1,174,800 beds. As these figures imply, the amount of money spent in this sector is tremendous. In fiscal year 1967, total funding for nursing home care was $1,751,000,000; of this amount, $907 million was from public funds. By the end of fiscal year 1975, the total price-tag for nursing homes had skyrocketed to $9 billion. This represented a 20.8 percent increase over the fiscal year 1974 figure of $7,450,000,000.

The majority of this money comes from the public budget. (In the past 4 years, the proportion of nursing home expenses met by public sources has risen from 42 percent to 58 percent.) In fiscal year 1975, Government's share in the nursing-home sector was $5,201,000-000. Dr. Weiler draws the obvious conclusion:

> With the tremendous amounts of money we are now spending on health care it has become imperative that we approach the problem from a cost-effectiveness perspective.

Home-delivered meals, as stated earlier, are a crucial component in care for the elderly. The homebound elderly do not necessarily require institutional care, but they must seek some support in maintaining themselves at home. Often, nutritional support is the major obstacle; shopping and meal preparation are extremely difficult for someone who is confined to bed or who can walk only with pain.

In many other cases, home-delivered meals are not the only support needed, but they make it possible for other sources of support to

be used. Jody Olsen, President of Meals on Wheels of Central Maryland, as well as Director of the University of Maryland's Center on Aging, explained one such possibility earlier this year:

> Many family members have called our central office saying that the delivery of meals has made it possible for them, as family members, to continue other services. The regular meals provide the constant from which they can provide emotional and practical support.

Delivery of meals to the homebound aged, then, can play a large role in reducing the costs of institutionalization.

Determination of the degree of such savings is, to say the least, difficult. One must be cautious when attempting to predict the future impact of current decisions. As in the entire field of public policy, there are many variables which, for various reasons, cannot be weighed in a narrow and specific cost-model. However, policymakers long ago learned that too much delay on account of uncertainty could be disastrous. In the succeeding computations, we have used the best data available in an attempt to reach a reasonable and justified figure. The results obtained offer a reasonable estimation of the range of savings which home-delivered meals could provide.

The essential point of this analysis is to compare the costs of institutionalization to the cost of support in the home through meals-on-wheels. Within this task, several steps are necessary.

(1) *The costs of institutionalization.*—The most recent quantification of individual nursing home costs was provided by HEW in their National Nursing Home Survey. They report that the fiscal year 1973 average total cost per resident day was $16.44. To update this to the present, one can apply the average growth in cost between 1969 an 1973, which was 11.4 percent. The result is a current daily expense of approximately $22.71 per patient. Three facts support the use of such extrapolation:

> (a) total expenditures for nursing homes rose at an average rate of 15 percent in those 3 years;
>
> (b) increasing attention is being paid to the enforcement of nursing home standards; the American Health Care Association cites this factor as being responsible for most of the cost increases of the past eight years.
>
> (c) the medical care services component of the Consumer Price Index has exceeded this rate over the last 3 years.

Multiplication of $22.71 and 365 (days per year) provides the approximate average cost of maintaining one person in an institution for a year: $8,300.

(2) *The costs of home-delivered meals.*—In early 1976, the Committee published a survey of the Title VII program's project directors. The data provided in this survey include costs of various meals-on-wheels programs. After excluding responses which were inadequate for use in these estimates, it was found that the average cost per meal for programs using volunteer transportation was $1.50. Numerous discussions between the Committee staff and program administrators have upheld the validity of this figure. It is, of course, possible that a Federal program (such as that proposed in S. 3585, the National Meals-on-Wheels Act of 1976) might cause this figure to rise slightly due to

standards set by the Government. To allow for this, the figure of $1.70 is suggested. This figure (× 365) yields an annual meals-on-wheels cost of approximately $620. It should be noted that this figure may somewhat overstate the costs since meals provided on weekends (about 102 days out of the year) have lower costs than the weekday meals from which the $1.50 figure was drawn.

(3) *Aggregate comparisons.*—To place these per capita figures into a clearer policy context, one may use as an example the level of home-delivered meals ($80 million) proposed in S. 3585. Assuming the per person costs of such a program to be $620 per year, first-year appropriations of $80 million would allow the participation of approximately 130,000 aged. ($80,000,000÷$620). For a group of that size, total nursing home costs for one year would be approximately $1,079,000,000 ($8,300×130,000). Thus, the difference in costs between home-delivered meals and nursing home care for 130,000 people is approximately $1 billion.

(4) *Public share of nursing home costs.*—As stated previously, Government's relative share of nursing home costs is rapidly increasing. Currently, the proportion is about 60 percent. This means that some of the costs are offset by private sources. Generally, it is the incomes of the patients that are used to defray the nursing home bill. A staff report for the Subcommittee on Health and the Environment of the House Committee on Interstate and Foreign Commerce explained the reason for this in February 1976.

> The great majority of the payments made by patients and their families are paid out of their own incomes, savings, or other personal resources without help from private insurance. Private insurance has provided little coverage because of the difficulty of distinguishing between medically-oriented care and custodial care and the high costs that can result unless coverage is carefully limited. For example, Blue Cross plans, which underwrite 88 percent of the private insurance plans with nursing home benefits that are held by the aged, paid out only one-quarter of one percent of the nation's fiscal year 1973 nursing home bill.

If one were to assume that, for the 130,000 elderly who would receive home-delivered meals, the 40-percent-share is applicable, the governmental costs would be reduced to about $600 million (1 billion times 60 percent). However, as will be explained later, we can expect these 130,000 aged to have very low incomes. In addition, the nursing home patient is usually allowed to retain $25 per month for personal needs. Therefore, one cannot reasonably expect a member of the group considered to be able to apply more than $2,500 per year to the costs of care in a nursing home. Thus, the Government share in the cost difference for the group under consideration would be $700 million.

It should be noted here that, in the next few years, the magnitude of this figure will rise rapidly if governmental support for nursing homes continues to increase at its current rate. Meals-on-wheels costs, on the other hand, increase far more slowly in both relative and absolute terms.

(5) *Percent actually averting institutionalization.*—One cannot claim that, without the provision of home-delivered meals, all 130,000 participants would be forced to enter a nursing home. It is therefore

necessary to determine the proportion of this group for which the savings analysis is applicable.

Doctors Douglas Holmes and Sandra Howell of the Center for Community Research completed a survey of 494 participants in home-delivered meals programs in 1972. The survey, funded by HEW, achieved the most comprehensive and representative sampling of such aged persons to date. The researchers chose 16 senior citizens from each of 32 programs. These 32 were carefully selected on the basis of size from a compilation and categorization of all home-delivered meals programs which could be located in 1972. The results of that survey provide strong documentation of the cost savings possible with meals-on-wheels.

(a) Participants were asked the question, "What is your alternative to home-delivered meals in the case of program termination?"

(1) 34.8 percent explicitly responded that they would enter a nursing home if the program were ended;

(2) 18.3 percent said they "would try to care for themselves"; this would indeed be a valiant effort for an individual who is over 60 years of age and is so debilitated as to be unable to leave his/her house or bed; we must, however, realize the unfortunate fact that such an independent alternative is, for too many in this group, almost impossible and certainly counterproductive; attempts at self-maintenance by the homebound elderly will too often lead to severe physical and mental deterioration. The Subcommittee on Long-Term Care of the Senate Special Committee on Aging concluded in November 1974:

> "It appears evident that if the elderly do not have their needs for home health, supportive service and meal services met, they will deteriorate to the point where institutionalization will be necessary, or they will die."

In this group, therefore, elimination of home-delivered meals would be a sure way to force much premature and unnecessary institutionalization; thus, it is reasonable to add part of this 18.3 percent to the count of those whose only alternative to home-delivered meals is a nursing home.

(3) 8.5 percent stated that they had no alternative, that they didn't know what they would do; this response is almost the same as self-maintenance, except that this group realizes the futility of trying to care for themselves; thus their indications of hopelessness demonstrate that most of them would also be forced into the last resort of a nursing home.

(4) 22.7 percent said they would be cared for by their families and 4.2 percent said they would obtain assistance from a neighbor; surely such help is desirable, but we cannot assume that it would be consistently sufficient; nutritional health surveys conducted during the past two decades have made this worry all too clear. Indeed, as Ms. Olsen pointed out earlier, families and neighbors often find support too difficult without home-delivered meals; the malnutrition which would therefore result would, as for those who attempted self-care, cause a significant degree of premature and unnecessary entries into nursing homes.

(5) The remaining 9.4 percent indicated that they would seek a level of assistance higher than provision of home-delivered meals but

lower than institutionalization; while these people would be able to maintain themselves in their own homes, they would be doing so in an inappropriate fashion; the new services would all carry a much higher price tag for both the individual and the government; it is simply wasteful to provide a nursing service, a home health aide, or some similar program for those aged whose need is only for home-delivered meals; moreover, given the inadequate funding for such intermediate services, one must question whether these elderly would be successful in actually securing them.

(b) Because the participants in the Holmes-Howell study differ in some respects from those who would participate in the National Meals-on-Wheels Program, the study systematically understates the amount of cost savings to be expected:

(1) The researchers found, in a separate question, that 40 percent of those interviewed were capable of participating in a congregate meal program; under S. 3585, however, eligibility would be restricted to the homebound aged; thus, both the degree of incapacitation and the need for significant outside help would be far greater.

(2) Studies of past meals-on-wheels programs are, of necessity, limited to those which must charge some fee for the delivery of meals; in this particular study, the median figure for proportion of participant contributions to program funding was approximately 50 percent; 80 percent of the participants owned a TV, radio, refrigerator, stove, indoor bath, toilet, and hot water; over 90 percent had all but the television; the authors conclude that "economic criteria indicate that many of the participants are not really in the destitute-poor category"; clearly, budgetary limitations have forced many meals programs to exclude the very-poor, the group which generally is in the greatest danger of institutionalization; in S. 3585, however, there is no fee requirement to limit participation by poor elderly; one significant result of this change would be a reduction in the number able to rely on such alternatives as self-care or assistance from relatives and neighbors.

It would be unreasonable to conclude from the foregoing analysis that 100 percent of those receiving home-delivered meals through S. 3585 would be directly saved from institutionalization. But, it would be equally unreasonable to insist that savings only be counted for those 34.8 percent who explicitly indicate that nursing homes are the only alternative. Each of the above considerations represents a clear increase over the base figure of 34.8 percent. It is, of course, impossible to state the exact quantitative impact of these determinations. It is necessary, therefore, to establish for each a reasonable range of resulting increase in the number of participants who must seek a nursing home. It is the conclusion of the Committee staff that a program such as S. 3585 would save between 50 percent and 75 percent of its participants from nursing homes; within this range, the best estimate is one of 60 percent.

It should be noted that these figures are equivalents. One cannot state that everyone in this 60 percent has a direct choice between home-delivered meals and institutionalization. That description only applies to about 45–50 percent of the participants. There is an additional group of 30–40 percent for whom the reduction in institutionalization through meals-on-wheels is not immediate or complete.

For ease of reference, however, the savings for the second group are expressed as equivalents of the first.

We can now make the final computation of potential savings. At minimum, the figure of 34.8 percent explicitly indicated by the respondents to the Holmes-Howell survey proves that the money saved by home-delivered meals through decreased institutionalization would be approximately $240 million per year (assuming a program expenditure of $80 million per year). These savings are above and beyond the cost of the meal program, which were subtracted in step three. Further, if one accepts the preceeding anlaysis of the Holmes-Howell survey, the savings produced by meals-on-wheels would actually be in the range of $350 million to $525 million, with the estimate of $420 million most likely.

Additional Considerations

Though the savings which can be accrued through home-delivered meals are tremendous, we must remember that such benefits are only part of a larger picture. Elsewhere in this report, the direct health and human benefits of nutritional support have been discussed. Reductions in unnecessary institutionalization will also yield such benefits.

First, we must commit ourselves to providing the elderly an effective guarantee of independent living to the maximum extent possible. One must question the goals of a society which places its aged in a geriatric warehouse when life in the general community is still possible. Not only do we give those senior citizens the message that they are unwanted and approaching death, but we deny ourselves the benefits which we can gain from a community which contains those with their years of experience.

Second, research is beginning to disclose that, by its very nature, entry into a nursing nome has severe impact on life expectancy. The Subcommittee on Long-Term Care of the Senate Special Committee on Aging reports that:

> Much evidence clearly indicates that old people look upon a nursing home with fear and hostility. It has been documented that old people believe entry into a home is a prelude to death, and that there is a negative relationship between survival and institutionalization. Substantially higher death rates were recorded among those admitted to nursing homes than among control groups, generally those on a waiting list for admission. This phenomenon has been termed "transplantation shock" by one researcher, who recorded a 42 percent death rate for those admitted to institutional facilities and 28 percent for those waiting admission.

Third, we must face the fact that nursing homes currently are beset by substandard conditions. Ms. Karnes writes that:

> A U.S. Senate report in December of 1974 concluded that a majority of this country's nursing homes are substandard, with life-threatening violations of state and federal law.

Increased enforcement efforts, of course, will help, but even in that case, nursing home costs would be forced to rise still faster.

Finally, there are cost savings which can be gained through reduction in hospital utilization by the elderly. As Dr. Tauber noted in Chapter II, home-delivered meals can bring about earlier discharge of hospital patients. Donald Trautman of the National Association of Home Health Care Agencies, described a GAO study which found that "20 to 30 percent of the hospital extended-stay patients have been retained because of social rather than medical reasons."*

The potential for cooperation between hospitals and meals programs was delineated by Bernita Grogan, one of Massachusetts' Title VII Nutrition Project Directors, in testimony before the Committee:

> The home-delivered meals have become so crucial that frequently Nantucket doctors will release a patient on condition he can be enrolled in a meals program.

As in the nursing home sector, hospital utilization is also significant and costly. Data from the National Health Survey reveal that persons 65 and over spent over 61 million days in hospitals in 1974. There were 25.4 discharges per 100 persons and the average length of stay was 11.7 days. In that same year, according to the American Hospital Association, expense per patient day reached $113.55. If the home-delivered meals program reduced hospital stays by a total of 130,000 days (one for each participant) the annual savings would be approximately $15 million.

Summary

It is not the intention of this section to claim that nursing homes should be completely replaced by community-oriented services. Such a shift would be unwarranted. But we must understand the implications of our current system and the ways in which it diminishes the cost-effectiveness of our tax dollars. The addition of meals-on-wheels to the services available to the Nation's elderly is a vitally needed step, and one that is especially justified on the basis of budget efficiency. Perhaps the most fitting conclusion is that expressed in testimony before the Select Committee by David Alves, director of the Elderly Nutrition Program of Greater New Bedford (Mass.):

> As we all recognize, nutrition competes for attention within the funding system. Congress must go beyond intuitive thinking and demonstrate their concern to provide the comprehensive services required to meet the demands of our nation's homebound. With our increasing elderly population, many of whom will need help, the decision seems clear. We can choose to either spend more and more on institutionalizing senior citizens, or provide the services that will keep them in their homes where they declare they want to be.

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*Report to the Congress, Study of Health Facilities Construction Costs, by the Comptroller General of the United States, Nov. 20, 1972.

Chapter VI

ADDITIONAL PROGRAM BENEFITS

A. Meals on Wheels as a Tool for Information and Referral

The number of Federal, State, local and private programs for older Americans is huge, and keeping track of only those programs within a single community is a challenge for even the ablest social worker. At the Federal level alone, there are 34 programs which directly serve the elderly. At the State level, especially since the passage of Title XX, there are many more programs with different purposes and designs. And, of course, each community contributes its share of city and private programs to fill perceived gaps in the service delivery system.

Two basic problems have confronted the programs in their efforts to reach those in need of service. It has been difficult at the outset to identify the senior citizen who may be in need of services and it has been equally, if not more, difficult to assure that those aged who are identified are served by the appropriate agency or agencies.

Identifying potential aged participants for services, or informing these persons of a program's existence so that they identify themselves, is an obviously necessary task. It becomes even more necessary and difficult in light of the common budgetary restraints which dictate that the most needy receive services first.

This task, however, is made more difficult by the types of problems which many of the programs are designed to overcome. For instance, the isolated senior citizen is most often isolated by choice and habit. After a period of time, the loneliness becomes reinforcing and militates against efforts to draw the individual into social activity.

As isolation becomes the pattern of existence, there, in turn, develops an attitude of fear toward any type of social activity. For persons such as this, the provision of information on programs through media and other means may be insufficient; they require extra inducements and special persuasion. Jeanette Pelcovits discussed this problem in the January 1971, Journal of the American Dietetic Association:

> . . . there are many older persons who do not make use of any of the available community resources, even though they may know about them. Just making them aware of the existence of such resources through conventional media is not enough.

The situation is even more severe for the homebound senior citizen who is not only lonely, but unable to leave home for social gatherings. There frequently is no one to keep the homebound person aware of community services and the individual is far less likely to seek services

on his or her own initiative. This has created numerous instances where the homebound senior is located only after crises develop.

As a result of these tendencies, most programs have developed outreach efforts to inform senior citizens of the service it provides. However, particularly in nutrition programs, these efforts have not always been successful.

Nutrition projects, due to a severe limitation of funds, have had little difficulty in attracting more than enough persons to attend. It is highly questionable, however, whether those who are attracted are those most in need of nutrition services. The staff summary of the Title VII Survey provides a valuable insight.

> Several directors noted that limited program funds insure that only the most alert and self motivated of the elderly will be reached. Many who are most desperately in need of program benefits will not be reached until the program can serve all those who have sought out the program on their own.

In order to reach the most needy, as previously mentioned, it is necessary to conduct aggressive outreach, including door to door interviews. Jeanette Pelcovits explains why this is necessary and confirms the conclusion of the Title VII Survey:

> . . . while a new program may attract many participants, it will not attract those in direct need—those who are socially isolated. The very nature of their isolation precludes participation in such a program unless concerted case-finding efforts are made.

Unfortunately, rather than conducting such intensive outreach, many nutrition programs have not needed to pursue participants at all. In An Evaluation of Outreach of the Nutrition Program for the Elderly, conducted by Opinion Research Corporation for the Administration on Aging, it is noted that outreach efforts were affected by the fact that "of a total of 35 sites visited, 32 indicated that they were serving as many meals as they were then budgeted for within a month after opening of the site."

The result of this nearly instant popularity was that many programs ceased to conduct outreach at all or pursued it in a less-than-aggressive manner. The Title VII Survey found that:

> Those projects that do not conduct an outreach program often had apparently valid reasons. They noted that due to limited funds they were already operating at full capacity and maintained large waiting lists. They believe that to continue extensive outreach would unjustly raise expectations and frustrate those whose expectations would be raised and then denied.

The second major problem facing programs for the elderly at all levels is to assure that the senior citizen, once identified, receives all the necessary services. Because each program often conducts its own outreach effort, there is no guarantee that each program, operating on its own, will locate the same senior citizen, who often will have multiple service needs.

To minimize this problem many programs have developed extensive information and referral systems to provide necessary coordination of community services. In particular, Title III of the Older Americans Act has been helpful in providing an area-wide planning and coordination system, known as Area Agencies on Aging.

These systems and the Area Agencies have been valuable additions to aging policies, but have not been totally successful in assuring targeted referral. Basically, the needs of the homebound elderly cannot be self-assessed very effectively. It is difficult, for instance, for a shut-in senior to recognize or especially to admit needing assistance in cleaning around the house. But this awareness is necessary before information which is provided is actually used.

It is here that Meals-on-Wheels can play a vital role. First, Meals-on-Wheels is a highly visible and very attractive program. A shy elderly individual can become gradually used to contact with delivery personnel for short periods of time. In some instances, the senior will ask the deliverer to leave the meal outside the door and will bring it in only after the project worker has left. This practice rarely lasts for long and soon the recipient begins to look forward to these daily visits.

In fact, home-delivered meals were proven effective outreach tools by the Title IV Demonstration projects conducted by the Administration on Aging. Jeanette Pelcovits describes the experience in those projects:

> Home-delivered meals have been used to reach lone seniors and acquaint them with the services available. After the initial contact, it is often possible to persuade the participants to join in group activities—especially with the meal program as a catalyst.

Second, Meals-on-Wheels provides a near-perfect structure for close targeting of additional community services to the specific needs of the homebound client. Meal delivery personnel can be easily trained to observe conditions in the homes of clients which would seem to necessitate the service of one or more additional community agencies. If such conditions exist, the volunteer or staff member reports the situation to the appropriate person in the project's central office who, in turn, contacts the appropriate agency. After a reasonable period of time, the Meals-on-Wheels office makes a follow up check to determine what action, if any, the agency has made.

This approach allows an objective assessment of the senior citizen's living conditions and health, while helping to insure that community services for the homebound are coordinated where it counts—at the service delivery level.

The experience of Meals on Wheels of Central Maryland in this regard is a useful example. Jody Olsen told the Select Committee that:

> During the (past) year, 4,100 referrals were made to other agencies, an increase of 87 percent over last year. This statistic reflects first, the fact that many of the people serviced by a home-delivered meal program have multiple needs, and, second, that it is important for each home-delivered meal program to be linked into other service agencies in the community.

B. The Special Role of the Volunteer

Volunteers play an important part in virtually all elderly nutrition programs, whether these programs are public or private.

Depending on the particular program and on the availability of volunteers in the area, unpaid workers may generally average from 50 to 80 percent of the staff. This figure, which includes public programs, would be much higher for private programs alone, since many of the local meals on wheels groups are run totally by community volunteers.

Volunteers bring two major contributions to any nutrition program: sensitivity and the willingness to work hard without monetary compensation. The sensitivity and understanding which volunteers consistently show for the homebound elderly is an important facet of the social benefits of the program. The meal recipient can always look forward to the visit of the Meals on Wheels worker, and knows that the volunteer is there because she cares. In a majority of cases, in fact, the volunteer is a senior citizen with an understanding based in common experience. Joseph Brown, Executive Director of the Rhode Island Meals on Wheels program underscored the vital role the volunteers fill, in testimony before the Select Committee.

> (Volunteers) are the heart and soul of the Meals on Wheels program. Many of them do far more than deliver meals. They go back another time and help individual clients by shopping, doing errands, taking them to doctors and clinics, etc.

The meals on wheels client is aware of and appreciates the effort of the volunteers. More importantly, the visit provides companionship which is otherwise lacking. Mr. Brown continues,

> To the elderly person, Meals on Wheels is more than just a hot meal. For many of them the daily social contact is of as much value, if not more so, than the hot meal. The volunteer may be the only person they see all day long and while the visits are brief, the volunteer brings in a lot of warmth and friendliness with the meal. This visit is really the highlight of the day for many of these lonely people.

In addition to these social benefits, volunteers also play a vital part in keeping program costs low, thereby extending nutritional benefits to many more. For every hour of time which a concerned citizen donates to the program, at least one more meal can be served to a needy person.

In fact, the extensive use of volunteers allows private programs to serve meals at a much lower cost than other nonvolunteer programs. Dr. Donald Watkins explained this comparison to the Select Committee in 1973:

> . . . there is no question but that volunteers' efforts in providing home-delivered meals have served the elderly beneficaries well and at a dollar cost to society well below that achievable through programs developed in the public or the private sector.

At the project level, savings associated with heavy reliance on volunteers are often substantial. The Title VII Survey was able to determine average per meal costs for most of the programs providing

home delivered meals. Some of these programs reported using paid delivery personnel, while others relied upon volunteers. In the aggregate, those programs responding, minus some from whom data was insufficient or unclear, reported a total of 3,468 meals delivered to homes per day, at a total cost of $1,755,748. This resulted in an average per meal cost of $1.95, including cost of transportation.

Further staff analysis of the survey yields the following comparison between programs using paid delivery personnel and those relying on volunteers. Programs using paid staff to deliver meals served 2,673 of the total number served, at a cost of $1,446,842. This reflected an average per meal cost of $2.08. Programs using volunteer drivers and deliverers, on the other hand, served 795 of the home-delivered meals with a total budget of $308,906. The cost of providing meals to the homebound using volunteer transportation averaged $1.50 per meal, or over 25 percent less than when paid staff are used.

These statistics point to the dramatic savings which volunteers allow. The figures are particularly important to policymakers considering more extensive Federal involvement in the program. For instance, the difference between the two delivery approaches at the $80 million funding level suggested by S. 3585 would allow an approximate additional 51,000 (approximately 205,000 [volunteer] versus 154,000 [paid]) persons to be served. These kinds of potential savings cannot be ignored; indeed, they should, as a matter of policy, be encouraged.

There are a number of specific actions which any Federal program for home-delivered meals should take to maximize the availability and use of volunteers. Some of these actions will require a small expenditure, but will, on balance, be a wise investment. Other actions will require the Government to be patient and flexible but will result in more, not less, program efficiency.

First, any Federal involvement in meals on wheels should stress wherever possible, an equal partnership with the private sector. When a private meals on wheels program is operating and has established a credible record as a service deliverer, these organizations should be given preference in the awarding of grants.

As previously noted, while many current Federal programs often use volunteers to some extent, the private sector has a much higher proportion of volunteers; many are run exclusively by volunteers.

It is critical, however, that the Federal involvement be restricted to providing financial assistance and establishing reasonable but flexible standards for quality service. Senator George McGovern, Chairman of the Select Committee, explained the need for this restraint in a recent issue of Perspectives on Aging, a publication of the National Council on the Aging.

> Meals-on-Wheels and the homebound aged can benefit from federal assistance only to the extent that the assistance does not dominate, direct, or distort their essential nature. It would be foolish and irresponsible to create a new system with an influx of federal funds that precluded or discouraged the vital role of the volunteer.

On a very limited scale the Federal Government has already provided some support to meals on wheels programs, through the Title VII structure, by contracting for service to a specified number of

persons. This approach, in at least one instance, has been successful in achieving a harmonious blend of Federal dollars with private administration. Meals on Wheels of Central Maryland, apparently the Nation's largest private group of its type, has had a cooperative, contractual agreement with Title VII projects in Baltimore City and surrounding counties for the past 3 years. Central Maryland's 2,600 volunteers have found this arrangement satisfactory and extremely valuable. Jody Olsen, President of the program, described the agreement in her recent testimony before the Select Committee:

> . . . we would like to recommend that the use of (private) organizations be through a "purchase of service" contract. This way, the Title VII program would buy the services of the home delivered meal program, thus preserving the existing structure if it is seen as being adequate to the task. Through purchase of service, volunteers will still have some part in program decision-making, an essential ingredient to their continued interest and participation in the program.

It is important, however, that this preference for private programs be given within the framework of reasonable criteria. There are many areas where, for example, no effective private program exists and other communities where the existing Title VII project would clearly be the superior provider. The choice of delivery systems should be made with consideration given to factors such as cost per meal, start-up and equipment costs, administrative and personnel expenses, quality of meals served, etc.

A second action which the Federal Government should take to encourage the use of volunteers under any Federal program is to allow funds to be used to compensate volunteers for expenses incurred in the delivery of meals. Many of the volunteers, and many more who would like to volunteer but cannot afford to, are senior citizens existing on fixed incomes. Under these circumstances, paying the fuel costs for the mileage required to deliver meals can be a substantial burden, especially at the current gasoline prices.

Allowing reimbursement for these expenses would not significantly reduce the cost savings of volunteers, but would increase their numbers by decreasing the financial burden of those who volunteer. Bernita C. Grogan, Director of the Title VII Nutrition project of Cape Cod and the Islands of Massachusetts, endorsed this approach,

> Costs of the Nantucket meal program are kept low by a network of older volunteers. Each day one car goes on the 7-mile, in town route while a second car takes the 14-mile beach route. With the high cost of gasoline, only the wealthy can be drivers. But with mileage reimbursement, the ranks of the volunteers would increase allowing those on lower incomes to be part of the team.

A recent Internal Revenue decision declared that transportation expenses of meals on wheels workers can be claimed as charitable donations for tax purposes. Despite the fact that tax deductions of this sort have little meaning for the low-income, programs have informed Committee staff that more volunteers have been recruited already.

APPENDIX

APPENDIX A

94TH CONGRESS
2D SESSION

S. 3585

IN THE SENATE OF THE UNITED STATES

JUNE 17, 1976

Mr. MCGOVERN (for himself, Mr. DOLE, Mr. KENNEDY, and Mr. PERCY) introduced the following bill; which was read twice and referred to the Committee on Labor and Public Welfare

A BILL

To amend the Older Americans Act of 1965 to provide a national meals-on-wheels program for the elderly and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "National Meals-on-Wheels Act of 1976".

SEC. 2. Section 706(a)(1) of the Older Americans Act of 1965 is amended by inserting "(A)" immediately after "(1)", by inserting after the semicolon the words "and, or", and by adding after such section the following new subparagraph:

"(B) to establish a project (referred to herein as a 'nutrition project') for the elderly, blind, and disabled which, five or more days per week, provides at least one home-delivered meal which assures a minimum of one-third the daily recommended dietary allowances as established by the Food and Nutrition Board of the National Academy of Sciences-National Research Council: *Provided*, That any nutrition project which elects to serve such meals more than five days a week must assure, at a minimum, an amount of commercially available ready-for-use nutritionally balanced liquid product or light snack, or both, which provide at least 25 per centum of such recommended dietary allowances for each day in which no home-delivered meal is provided. Preference, where feasible, should be given to the use of organizations, such as meals-on-wheels groups, which have demonstrated an ability to operate such services efficiently and reasonably;".

SEC. 3. Section 706(a) of the Older Americans Act of 1965 is amended by striking out "and" at the end of paragraph (10), by redesignating paragraph (11), and all references thereto, as paragraph (13), and by inserting immediately after paragraph (10) the following new paragraphs:

"(11) to operate an information and referral system for homebound individuals receiving meals under this title by—

"(A) training the delivery personnel so that such personnel may make informed judgments about the additional service needs of meal recipients; and

"(B) reporting the additional service needs to agencies, groups, or individuals who might be of assistance in meeting such needs;

"(12) to seek and utilize volunteer personnel for the provision of home-delivered meals to the maximum extent possible and to compensate such personnel when appropriate for transportation expenses incurred in the delivery of such meals; and".

SEC. 4. (a) (1) Section 708 of the Older Americans Act of 1965 is amended by inserting "(a)" after the section designation.

(2) Section 708(a) of such Act (as redesignated by paragraph (1) of this subsection) is amended by inserting "and paragraph (1)(B), (11), and (12) of section 706(a)" after "section 707(c)" in the parenthetical.

(b) Section 708 of such Act is amended by adding at the end thereof the following new subsection:

"(b) In addition to the sums authorized by subsection (a), there are authorized to be appropriated $80,000,000 for the fiscal year 1977, and $100,000,000 for the fiscal year 1978 for the purpose of providing home delivered meals pursuant to section 706(a)(1)(B): *Provided*, That not more than 20 per centum of such funds shall be used for administrative expenses and supportive services. Sums appropriated pursuant to this section to carry out the provisions of this title shall remain available for such purposes until expended.".

"NATIONAL AERONAUTICS AND SPACE ADMINISTRATION MEALS SYSTEM FOR THE ELDERLY DEMONSTRATION PROJECTS

"SEC. 710. (a) The Commissioner shall conduct a demonstration project involving at least three States to determine the feasibility of using the meals system designed by the National Aeronautics and Space Administration for the elderly as a component of or as a substitute for regular nutrition projects assisted under this Act particularly in areas where normal delivery services under such a nutrition project are not feasible or practicable or are too costly. Each such demonstration project shall include a medical evaluation.

"(b) The Commissioner shall report to the Congress on the results of the demonstration projects authorized by this section together with such recommendations including recommendations for legislation as he deems appropriate.

"(c) There are authorized to be appropriated for the fiscal year 1977 such sums as may be necessary to carry out the provisions of this section.".

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APPENDIX B

[From the Washingtonian, November 1975]

CAN YOU STARVE IN WASHINGTON? YES

(By Loretta Schwartz)

It was noon on Tuesday when I arrived. I climbed the rickety wooden staircase that led to the kitchen. In the rear of a decaying green house on Kenyon Street in Northwest DC, I found Margarita, a thin, gray-haired woman, wearing a worn blue housecoat. She sat at a small metal table. Roaches crawled across the torn, green and white plastic tablecloth, past the once-white lamp that had no shade. They made their way along the rim of the old rusty toaster. Several crawled into her lunch, stopping on the single chicken leg. Margarita is blind. And if it were not for the lunches delivered to her each weekday, she'd probably be dead.

She smiled at me, raising her sightless eyes. "It's so nice to have company," she said. She pulled me to her and whispered, "You know, I live here, but I don't know any other people here and usually nobody visits me."

"Do you have any relatives?" I asked, noticing the pictures of John F. Kennedy, Jesus Christ, and a slender dark-eyed young woman side by side on the wall. Roaches crawled over their faded cardboard faces. Two roaches walked across my notepad. I brushed them off.

"God called my relatives," she said softly. "I lost my sister, going on five years," her voice trailed off wistfully. "The last sister I had."

"Can you go outside alone, Margarita?" I asked. "Can you buy food?"

"I've tried," she said, "but I always fall. My sides have been bruised so badly that I'm afraid to try again."

"What about supper and breakfast?"

"Well," she said, "I save some of my lunch."

Many years have passed since Margarita worked the night shift as a cook and waitress at Eddie Leonard's on 14th Street. Most of the people she knew then have died or forgotten her. These days, as she sits in her kitchen beside the large steel garbage can, or in the bedroom on the brown chair with the stuffing falling out, life is mostly memories.

Looking at the cracking, filthy walls and black linoleum floor, I asked, "How much rent do you pay?"

"Only $90," she answered. "And for that I get *everything* you see here."

Margarita is a diabetic, besides being blind. Even the simplest things are difficult. Her legs were badly swollen, and the bedroom slippers were on the wrong feet. She moved haltingly toward the dingy white curtains tied with pink ribbons that lined the entrance to her kitchen.

A candle burned on a dust-covered shelf in her tiny bedroom. Margarita told me she could see a little light. "The candle is for my sister," she said. "I lit it just before you came. It's a holy candle and it puts a lovely sensation in me."

When I left, Margarita stood among the dirt and the roaches and the broken furniture, stretching out her arms to wave goodbye.

Margarita survives on free lunches made available by Title VII of the Older Americans Act and administered by the DC Department of Human Resources. The program exists in part to feed old people who live at the poverty level a third of their nutritional food supply five days a week. The department now is serving 1,330 meals a day here, but according to the 1970 census—outdated now—103,713 senior citizens live in the District, of whom 38,000 are eligible for the food assistance program. Which means that the federal government reaches only 4.5 percent of the servable population, a tenth of whom are homebound like Margarita. And according to Verna Burke, project director for the area, many live without heat, hot water, or plumbing.

Some were too ashamed of their condition to allow an interview. Yet they may be among the lucky ones, because no one knows how many of the unserved 95 percent are starving, perhaps dying somewhere, in some room, because hunger and malnutrition have weakened their bodies and made them vulnerable to disease. In many areas of the city, people are put on waiting lists or turned away because of limited funds. Some who need the service do not know about it. Others hesitate to call.

"Elderly people are sometimes fearful because they have been hurt so much," explains Father Gregory Malletta of the Episcopal Diocese, which coordinates several feeding sites. "And they are often very proud, particularly those who have known better days. Many of the people we serve came here from Europe 30 or 40 years ago and now live on very low fixed incomes. The section of Northwest we serve is considered an affluent area, but there are about 1,600 senior citizens living in this section alone who are below the national poverty level."

Some of those senior citizens eat lunch at Temple Adas Israel, a large stone building at the corner of Connecticut Avenue and Porter Street. The day I went, several dozen men and women arrived well before the long tables were set with linen cloths for the small kosher meal. The women were mostly dressed in cotton prints, the men in suits, and they listened intently as one of their members reviewed *The Flavor of Jerusalem*, a book about that country's exotic foods. Even the very old turned their deeply lined faces toward the speaker, smiling and nodding as if they remembered the food of their own long-ago childhoods.

These are gentle people who seem more concerned with their cultural heritage than with their own present needs. Yet some are very poor—they live on Social Security checks as low as $91.66 a month, hardly enough to have survived on years ago before inflation.

When it was time to eat, they insisted that I join them. The meal, a little spaghetti with one small meatball, half a canned peach, and a few slices of squash, left many still hungry. There was no

salad or soup or dessert. When the food was finished, Mrs. White, a tiny, ancient lady, smoothed her black flowered dress and passed around a box of hard candies someone had given her as a gift, explaining that since the portions were getting smaller, people could use this as dessert.

A woman at the end of the table in a pale green dress and black orthopedic shoes slowly wrapped her meatball in a paper napkin, then carefully put it inside her white plastic purse. It was Thursday, and while most of the food centers are closed on Saturday and Sunday, Adas Israel is closed on Friday too, in order to prepare for the Sabbath. Knowing that some of these people may have little or nothing to eat for the last three days of each week, I was not surprised to see another woman, very old but spry looking and dressed in an immaculate blue-and-white-checked dress, place a small glass jar filled with spaghetti into her paper shopping bag. She smiled at me, we talked for awhile, and she invited me to go home with her and visit. As we walked down the curved path to her apartment in the Quebec House, a large, well-kept brick building about a block from the Temple, she held my hand tightly, as a child might. She was missing more than food.

Inside, the apartment was tiny but clean and the walls were history—covered with pictures of her dead husband and two young sons, now grown and living far away; she rarely sees them. As we sat on the cot that is both bed and sofa, I learned that the rent for this efficiency apartment is $166 a month and that the Social Security check on which she lives is $200 a month. That leaves her a little more than $1 a day to live on.

I remember the jar of spaghetti and asked how it will be enough for the weekend, let alone supper that night. "Oh," she said, "lunch is such a big meal that for supper I usually have a cookie I bake myself or a piece of toast."

"What about the weekends?"

She shrugged, smiled sadly, and instead of answering, pressed three small, foil-wrapped cookies into my hand. "Please take these," she said. "It would give me such great pleasure if you would have them." Then she walked outside with me and stood on the corner waving' until I drove out of sight. "I'll tell you," she had said, "it's a privilege to be a senior citizen in America today. Look how we live. Life is so sweet."

Because of rising food costs, the Title VII program has been forced to reduce the number of meals it serves to senior citizens. Press coverage and the protests of food recipients at some of the poorest sites resulted in a promise of supplementary federal funds to maintain the program at its original level, but so far those funds have not been received.

Perhaps that's why, in the basement of St. Stephen's Church at 16th and Newton Streets, Northwest, many of the people who filled the large, dirty room at lunchtime seemed desperate. Some put food into their pockets, some searched through the garbage for something to eat or take home after lunch was over.

Of course, not all hungry people are old, although the Title VII program is designed for the elderly. It is one of several federal programs

directed toward eliminating hunger. Despite the good intentions, all the programs seem doomed to failure.

The war on hunger started back in 1967, when a series of hearings shocked the country by documenting the existence of more widespread poverty, malnutrition, and hunger than anyone imagined. The hearings showed conclusively that many of the victims of hunger were children, and pointed out that hunger during school hours prevents them from learning. In 1969, National Nutrition Program studies in Texas revealed that the diets of low-income school children were poor and their growth markedly subnormal. Further, biochemical analysis of their urine and blood showed that 19 percent had unacceptable levels of hemoglobin, vitamin A, vitamin C, plasma protein, serum, albumin, riboflavin, and thiamine—which supported the contention that the academic backwardness of impoverished children might be due to malnutrition. That was the same year that a free breakfast program was established in D.C. public schools. Today, every one of the District's 131,000 children is supposedly eligible for that breakfast. Only about 21,000 are getting it.

"Many kids come to school hungry every day," explained Joseph Stewart, the articulate, well-dressed director of food services for D.C. public schools. "Sometimes parents will not fill out the forms because they are too proud. Often a poor family may not consider food a priority. We have no diagnostic tool to determine hunger in our schools, but we do know that hunger and malnutrition make children dull. It results in slowness and inattentiveness. It makes children more susceptible to disease—and if hunger is presenting all those obstacles, how the hell can they learn?"

Stewart also said that several schools still do not participate in the program, perhaps because it's not court mandated. Neither, he added, is the summer feeding program, designed by Mayor Walter Washington, who said, "You don't take a three-month vacation from hunger." But less than a sixth of D.C.'s children get that meal. And unfortunately, many of the children who do receive it are not the ones who need it most. In fact, John Cromer, area food manager for the summer feeding program at Johnson Junior High in Southeast, seemed unaware that the program was designed to feed the undernourished. "Rich or poor, it makes no difference," he told me as we stood in the small, sparsely furnished office behind the kitchen where lunches were prepared.

"Then who is eligible?" I asked. "How many children eat at each location? And how are they selected?"

Cromer shrugged, and I figured I might do better talking to the children themselves. Several dozen had just filed into the cafeteria for a lunch of fish and french fries, the menu of the day. But due to some mix-up, about half were eating Sloppy Joes with tartar sauce. One of them was a skinny little black girl with uncombed hair. Her name was Tammy. I asked her what she'd had for breakfast.

"Nothin'." she answered, her brown eyes wide with surprise. "We *never* have nothin'."

"Most of our children don't eat breakfast," says Bessy Wells, the warm, maternal-looking assistant principal of Johnson Junior High. "But the majority of those you see here now *aren't* our children.

Sixteen hundred kids eat here during the regular school term, and over 90 percent of them are eligible for free food. But in the summer they aren't eligible unless they are in the Title I program, which means that they must be performing below the 50-percent level on their standardized tests. This means that a poverty-level kid, even if he's critically under-nourished, can be denied summer lunches simply because he somehow manages to do well in school. The only exception to this is for those who are in the recreation program. But that is limited to the very young, who don't have to be disadvantaged at all to qualify."

Now I knew why so many of the children eating lunch on this day were well dressed. But what about the 51,000 *poor* children living in the District? Where would they get food during the summer? And what could they do if their mothers ran out of food?

Some of D.C.'s poor live on cheap, inadequate, mostly starch diets so it's not surprising to find even obese children who are dangerously undernourished. And since children are relatively helpless, most simply eat whatever they are given. One young mother of five living in a single room at the top of a brownstone on N Street in Northwest DC explained proudly, "I used to run out of food all the time, but I do better now because I don't buy any meat or fruit." I looked at her children, aged four, five, seven, and eight, sitting almost too quietly on the floor in the darkened room. One little girl smiled at me shyly. "What do the children eat?" I asked.

"Beans," she answered. "They never complain as long as I cook enough beans to fill them up."

Hunger does not stop at the District line. Inside the large, white, nine-story Presidential Building on Belcrest Road in Hyattsville, the lines for food stamp certification start forming at 4:30 a.m., despite the fact that ther e are no posters or signs directing people to the proper office and no information posted about what qualifications they need to be certified. They come in droves. Many wait all day without food and go home without hope of getting any.

The food stamp program was set up in 1961 by the Department of Agriculture. The stamps are sold to low-income recipients who cash them for more dollars' worth of food at a grocery or supermarket. While it is technically possible for a family to get an adequate diet with the food stamp allowance, it often is difficult for the poor and poorly educated to acquire the nutritional expertise to make the complicated calculations necessary for this kind of shopping. And it is unlikely that there will be extra money in any household, since the price of stamps increases along with the yearly income of the purchaser. A single woman receiving $194 per month in Social Security would pay $33 for stamps worth $46. In effect, she is given a $13-a-month subsidy to buy more food and upgrade her diet. Unfortunately, it often doesn't work that way. While some well-to-do students and other ineligibles have found their way into the program, the people who most need the stamps often cannot afford to buy them. Others cannot adapt to the rigid program regulations necessary for certification and, as a result, large numbers of people are in desperate circumstances.

I sat down in one of those stiff, straight-backed wooden chairs designed for those who must wait, and began to talk to the people

around me. Several explained that they had called before coming and had been told that they would have to wait six weeks for an appointment or come in at 5 a.m. and hope to be seen in a "free moment."

"I've been here since 4:30 this morning," said one young black woman, tired and angered by the long wait. "I worked as a nurse until I got pregnant. Now I can't get free health care because my husband is working. We don't want to go on welfare. We want to work. But each month when the medical bills and other bills are paid, there's only $25 left. So, we sit around and look at each other . . . hungry."

"My husband works too," said a middle-aged redhead sitting nearby. "So I have to travel down here every month and wait all day so I can prove to them that we are still as poor as we were a month before. They say they're afraid he'll get a raise. But it's the same job and the same income. I don't see why they don't just call the Autorama Cab Company, where he's a transmission specialist, and say, 'Is Herb still there?'

"And by the way," she added, "did you know that we can't get toilet paper or soap with food stamps? I could understand it if we didn't have to go to the bathroom or wash. But is seems like they expect poor people to go out into the woods and use leaves!"

Everyone laughed. But the laughter masked embarrassment and pain. Mary Morehouse, a heavy-set-blonde mother of three, came out of the certification office located in the back of the waiting room.

"Well, I'm finally certified," she said, her voice a monotone. "My stamps will cost me $23."

"Do you have $23?"

"No."

"Do you have a place to get it?"

"No."

"What are you going to do?"

"I'll tell you what she'll do," said another woman. "She'll either let her kids starve or she'll get her ass out into the street and get it the best way she can."

A young white woman who sat staring off into space wiped her eyes with the back of her hand. Her lips were trembling and despite the fact that all her lower teeth were missing, she was still very pretty. She, too, had arrived at 4:30. "They want my husband to sign this support slip," she said, holding a form in her hand.

"Does he support you?" someone asked.

"No," she said. "He disappeared a few weeks ago. He was living with his girl friend but then he moved out. I told them I couldn't find him and they said, 'Okay, we'll give you more time to find him.' But I promised my kids I'd come home with food today—they haven't eaten anything since yesterday morning."

"It's a bureaucratic morass with people as victims," said Helen Blank. She's the energetic young director of the Food Stamp Coalition, a non-profit corporation dedicated to improving outreach efforts and increasing food stamp participation. "The major problem is that Prince Georges County won't commit itself to the food stamp program. The administrators are constantly afraid that too many

will get too much, so they keep cutting people off. Meanwhile, they refuse to hire the number of certification workers necessary. Right now there are only 26 people here to serve over 32,000."

In an effort to help reduce long waiting periods and impersonal treatment, the First United Church on East-West Highway in Hyattsville has set up a food stamp coordination center. Pat Brown sits in her tiny cluttered office and explains in between phone calls, "The Department of Social Services refers people who have heard food stamps are available here. Of course, we have many more calls than we can handle, so people are told to call back in a week and we will then see if they qualify. After that they must wait two more weeks to get an appointment at one of our six churches. An interviewer then goes through the papers they have brought and determines with them whether or not they are eligible. But sometimes, the first time they call, they say, 'We have no food, and we can't wait three weeks.' So we put them on hold and we cry a lot. We call up the supervisors and beg for special appointments. On Fridays we always get desperate people, because they suddenly realize they've got a whole weekend ahead of them with no food. But often we just feel there's nothing we can do. We had one little old lady tell us,' You know, you're very nice, but I have no food. What am I going to do? *I have no food!*'

"The people who get the angriest are those who have never asked for help before. They've paid their taxes all their lives and now, when they're in trouble, they can't understand why they aren't getting help. Others accept their plight quietly. Recently, we got a call from Congresswoman Gladys Spellman's office about a woman who was taking food from Safeway's garbage in order to feed her two grandchildren."

The woman—we'll call her Anna Rosetti—loves her grandchildren and has been caring for them since their mother's commitment to a state mental institution. But because the children are not legally hers, she is not eligible for aid to dependent children. Mrs. Rosetti, whose son helps her with the rent when he can, receives $87 a month in Social Security. The food stamp office told her that as far as they are concerned, she had no dependents and that means her income is too high for food stamps. Although arthritic and partially blind, Mrs. Rosetti has been turned away from every state agency she has applied to. No one will help her. So she must continue to support a family of three on less than $22 a week, and that means she and her grandsons, aged eight and nine, must continue eating garbage and emptying trash bins in order to survive.

Things are not much different in Montgomery County, even though it's the richest county in America. When people speak of it, they often refer to Chevy Chase, where many houses cost over $100,000. Or to the Potomac horse country, with its large, white-fenced $200,000 and $300,000 estates. But hardly anyone speaks of the starving.

Ellen Elward is one of the exceptions. As part of the University of Maryland's Extension Service, she teaches home economics to community residents. "My job," she says, "is to teach people to manage better and help themselves out of whatever slumps they are in. Our group was into education, but we fell into food by accident

because we found that many of the people we were trying to teach were too hungry to learn. I began to knock on people's doors, asking them about food. Then I started sending flyers to them. At this point we have 500 trained volunteers. There was so much need that I couldn't begin to reach all these families by myself, and even now, I know that there are still many that we are not reaching."

The Montgomery County Department of Human Resources also is having trouble reaching its target population of senior citizens. "We feed about 200 elderly people one meal a day, five days a week," says Betty Brown, the community relations director for the county's nutrition program. "But even in 1970, there were 6,000 living below the poverty level here in this county. Not only has that number increased, but we know that there are four or five times that many having a very difficult time. Ours is just a token program. People can call in and make reservations for lunch on a daily basis, but when we fill up the reservations are closed and the rest are simply turned away. What can we do? That's all the money that was appropriated to us."

Mary Goodwin, nutritionist with the Montgomery County Health Department, explains, "In Montgomery County, unlike in Prince George's County, there are no lines at our food stamp offices, but that's often because the people who need these programs don't even know about them. In 1971 the US Department of Agriculture was required by court legislation to develop food stamp outreach programs; however, most areas have given only token support to the concept of outreach. And many have ignored the mandate altogether. Both Virginia and Maryland are now being sued by local legal services and by the Food Research Action Center because they have not used the outreach money Congress authorized to publicize the program. There are only two places in all of Montgomery County where stamps are available on a daily basis—and the working poor cannot obtain stamps there, because the places have no evening or weekend hours. In Montgomery County there are as many eligible people left out of food stamp programs as there are those who use food stamps in the entire city of Baltimore. Our welfare payments are so low that if you break down what is allocated to a family of four, after rent, utilities, and clothing, there is only 16 cents per person left for each meal. So even when they are given aid, the people who are the most disadvantaged are expected to operate at the highest level of planning and budgeting. The frustration for reformers working within the system is so great that often the best people quit."

Mary Helen Goodloe-Murphy, former director of the Montgomery County Task Force, quit last April. "The Hunger Task Force was supposed to be involved with outreach of all kinds," she said. "But I felt like I was running up against a brick wall. We were to be the food stamp advocates, and I wanted to be an effective advocate. I wanted to get people out into the homes and schools. But I had to deal with supervisors in the Department of Social Services, and I'm not sure they ever wanted to have outreach workers. What they call outreach is seeing all those cases previously assigned to them in a total of three hours once a month. Meanwhile, the need for emergency help has more than doubled in the past year. I was working 14 hours a day and not getting anywhere because the government was actually

blocking me. If I wanted extra workers, I had to request them a month in advance. At one point, they even refused to tell me how many people were using food stamps.

We've got this system, but it doesn't work. Even the food stamp certification form that these people are expected to fill out is so technically difficult that our college graduate volunteers have trouble with it. There is an almost endless list of questions to answer and receipts to provide. And until you answer every question and come up with every receipt, you get no food."

Jim Turner woke up at six one rainy morning. His wife and four children still were asleep. He knew that there was no way the half-box of rice they had on the kitchen shelf could sustain them any longer. At 51, it's hard to admit that you're still making mistakes. But this time Jim knew he should have asked for help sooner. He should never have let things get to this point. Jim dressed quickly, then woke his wife and told her he was going to walk to the Social Services Office in Rockville and ask for help—just one check, just enough to get something into the kids' bellies. Then, somehow, they'd get on their own feet again. Turner, a small, slender man with gray hair and horn-rimmed glasses, spent most of the day at Rockville Social Services before he was told that without a doctor's report certifying that his emphysema and chronic bronchitis rendered him too weak to work, they could do nothing for him. After explaining that he had no money for carfare, Mr. Turner walked with difficulty to his doctor's office. The doctor signed the necessary forms and added a note saying that Jim had only half of the normal lung capacity and could not possibly do any heavy work under any circumstances. But by the time the note was written, it was four o'clock and too late to walk back to Rockville before the office closed. On Wednesday Jim returned, still on foot, and presented the forms. This time he was told that his wife must come back with him and sign up for a work incentive program before his request could be considered further. So once again Jim Turner left the Office of Social Services and began the walk home without money or food.

Inside the Turners' small, sparsely furnished Montgomery County home, Carol Turner sat at the empty dining room table and waited. One wall had no plaster and on that side the rain leaked in. Mrs. Turner, an articulate, middle-aged woman whose short brown hair was turning gray, explained, "For a long time now we've been eating from day to day. Ever since the elderly woman I was taking care of died, I've been looking for another job. I've borrowed from the neighbors 'til I feel I can't borrow anymore."

Her daughter Leslie, a tall, slender 13-year-old with long brown hair, came into the room.

"The kids have been very good," Carol added. "They haven't complained."

Then a small blonde boy with large brown eyes toddled over. Leslie picked him up. "Are you hungry?" she said. From the refrigerator she took the last small bowl of rice for him.

Down the road from the Turners, Sherri Mitchell was frying flour and water, making a kind of pancake to feed her four-year-old daughter. And this strange pancake was familiar to the child, because that was all she had eaten for the past two weeks, ever since the food

stamp office had turned them down because a student loan the woman's husband had received and used for tuition had rendered them "over scale."

In Fairfax County, the country's second richest area, emergency requests for food have become so great that the United Community Ministries, an emergency crisis intervention agency that serves the Route 1 corridor, frequently finds itself unable to meet the need. Located at 6206 North King Highway, next to what will be a Metro station, this rundown, yellow cinderblock building must often turn people away because its own kitchen is completely out of food.

"When we can, we give them enough to last three days," said Sue Jacobs, the Ministry's young, jeans-clad supervisor of home visits, as we drove down Richmond Highway. We were bringing food to some of the most desperate cases. In Fairfax County, that often means pregnant women.

In 1969, the McGovern Senate Select Committee established beyond any doubt that brain damage and sometimes death are caused by malnutrition in unborn infants and young children. The severity of the effects is very much dependent on the time of life when deprivation occurs. In the period before birth, the brain is growing rapidly and is therefore most sensitive to the effects of undernourishment. If the fetus is inadequately nourished, the newborn will have fewer brain cells. Vigorous supplementation with foods during the first six months of life can correct the damage, but unfortunately the mothers who do not eat properly during pregnancy also are unlikely to provide adequate diets for their newborn infants. And children who are not provided with carbohydrates or iron in the form of meat and animal protein will not be able to develop or sustain normal brain functions.

For these reasons, pregnant women, infants, and children under the age of four have been eligible for special supplemental foods in many parts of the country. These include the milk, meat, vegetables, and fruit essential for normal growth. In D.C. for example, the Department of Human Resources runs a supplemental food program: Eligible women can pick up bags of food at ten different centers. But the program is riddled with problems: It's operating with 35 percent of its staff missing, and with outreach so inadequate that 1,500 bags of food go uneaten every two weeks. But DC still is way ahead of Fairfax County, which has never acknowledged its need or established such a program. Now, as we drove through the county, Sue Jacobs explained, "We try to give the women peanut butter and jelly, but it's awfully expensive, so we can't always do it. A can of orange juice and a package of butter are also luxuries. Luckily, we get day-old bread from Grand Union free."

We pulled off the highway and stopped at a dilapidated wooden house. Outside, a thin, brown dog barked, straining at his leash. Flies, drawn by the dog's feces, buzzed around us as we climbed the rickety steps and opened the rusted screen door. Inside lay Brenda Alexander, who'd been living with her mother since her husband left her. Red plastic cardinals and a few plastic flowers decorated the place. Brenda raised herself with difficulty when she saw us and walked slowly to the brown plastic living room couch.

She was eight months pregnant. She sat down and—for a moment—looked just like any other 16-year-old kid—delicate freckled face and long brown pony-tail.

"How long have you been without food, Brenda?" Sue asked.

"Well, they took us off food stamps two months ago because my brother turned 18, It's been pretty rough since then. We came here from Kentucky and when we first got here we didn't know how rough it would be. My father was supposed to give us $100 a month, but he doesn't give us anything. My husband left one night saying he was going for a pack of cigarettes and he never came back. Mom's out now, looking for work; so is my brother. But I'll tell you, these days work is hard to find."

"When did you last eat, Brenda?" Sue asked.

"Well, I don't know. I don't remember," she said in her Kentucky accent, her face turning deep red. "I'm not too big of an eater."

"Did you have any breakfast or lunch today?"

"I'm a real bad eater," she said.

Sue Jacobs said, "Please tell your mother that when this food is gone, we won't be able to give you anymore."

"Oh, yes," she said, "I will, and thank you for the food. Thank you so much."

We drove on up the highway and Sue explained how she hated to tell people she couldn't keep providing them with food. But United Community Ministries is only an emergency resource, a three-day supply, and they simply have more requests than they can handle.

We circled in behind Vic's Tavern and Sue pointed to a group of little one- and two-room huts.

"The owner of this tavern allows people with a lot of children and bad credit to live here," she told me. "Those people have a terrible time finding homes, so they end up taking these place. The rent is $250 a month. But, when you have five kids and no place to live, what are you going to do?"

The time flashed 4:30 on the Bank of Virginia clock. Just beyond it at Sherwood Hall Lane and Richmond Highway, we turned up a dirt road and there, behind the George Washington Restaurant, hidden from the view of commuters and vacationing travelers, stood half-a-dozen filthy, dilapidated one-room wooden shacks. They have no heat in winter and no hot water. Betty, who is six months pregnant, lives in one of them with her mother and they often are without food. When the car pulled up, the frail, thin 19-year-old came outside, bent like an exhausted old woman. She never asked us in, perhaps because she was ashamed of the tiny room, visible through the doorway, and its rusty sink and torn sofa. But from what I could see, even if she hadn't been ashamed, there would not have been enough room for all of us to stand inside. The place was that small.

Betty greeted us without energy. And we asked what had now begun to seem like a natural question. "Do you have any food in the house?"

She barely answered.

"Have you eaten lately?"

Again, no answer.

"The baby needs food," we suggested, looking for something to say.

Betty put her hands on her stomach and patted it gently, sadly, with resignation, like someone who was resting after a long struggle. "Not anymore," she said, her voice trailing off and her dark eyes growing misty. "I've been to the doctor. There is no heartbeat. Food doesn't matter anymore for me. My baby is already dead."

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